



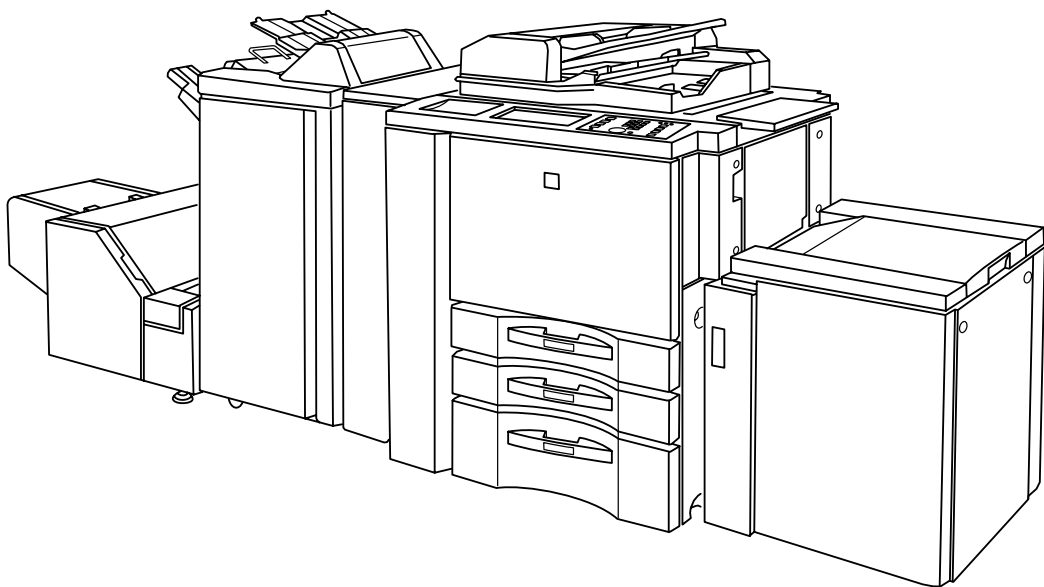
MINOLTA

Service Manual

[General]

The essentials of Imaging

Di850



There are using both Official Options name and Popular Options name in the Di850 Service Manual and Option Service Manual.

Official Options name : Popular Options name

EDH-5 : RADF

C-403/C-404 : LT and LCT

FN-115 : FNS

FN-7 : FNS

Cover Inserte Cr : PI

PK-3 : PU

TMG-2 : TU

ZK-2 : PZ

In-System Writer : ISW

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Minolta Corporation strongly recommends that all servicing be performed only by Minolta-trained service technicians.

Changes may have been made to this copier to improve its performance after this Service Manual was printed. Accordingly, Minolta Corporation does not warrant, either explicitly or implicitly, that the information contained in this Service Manual is complete and accurate.

The user of this Service Manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this Service Manual is intended.


Therefore, this Service Manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.


Keep this Service Manual also for future service.


DANGER, WARNING, AND CAUTION SYMBOLS AND EXPRESSIONS

In this Service Manual, each of three expressions "⚠ DANGER," "⚠ WARNING," and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.

When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

 **DANGER** :Action having a high possibility of suffering death or serious injury

 **WARNING** :Action having a possibility of suffering death or serious injury

 **CAUTION** :Action having a possibility of suffering a slight wound, medium trouble, and property damage

Symbols used for important warning items are defined as follows:

 :Precaution


 General precaution


 Electric shock


 Heated surface

 :Prohibition


 General prohibition


 Do not touch with wet hand


 Do not disassemble

 :Direction


 General instruction


 Unplug


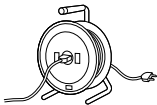

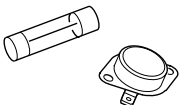

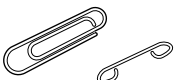

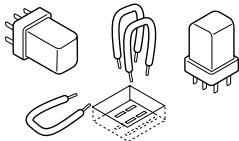

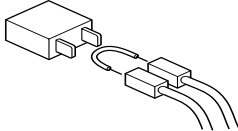


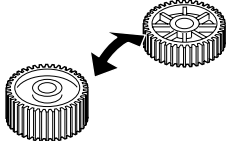

 Ground/Earth

SAFETY WARNINGS

[1] MODIFICATIONS NOT AUTHORIZED BY MINOLTA

Minolta copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. The points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

! PROHIBITED ACTIONS:		
• Using any cables or power cord not specified by Minolta.		
• Using any fuse or thermostat not specified by Minolta. Safety will not be assured, leading to a risk of fire and injury.		
• Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.		
• Disabling relay functions (such as wedging paper between relay contacts)		
• Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury.		
• Making any modification to the copier unless instructed by Minolta		
• Using parts not specified by Minolta		

[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

Minolta copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1. Power Supply

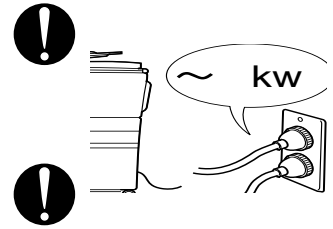
WARNING: Wall Outlet

- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

If excessive current flows in the wall outlet, fire may result.



WARNING: Power Plug and Cord

- Make sure the power cord is plugged in the wall outlet securely. Contact problems may lead to increased resistance, overheating, and the risk of fire.

- Check whether the power cord is damaged. Check whether the sheath is damaged.

If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by Minolta. Using the damaged power cord may result in fire or electric shock.

- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:

- a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier.

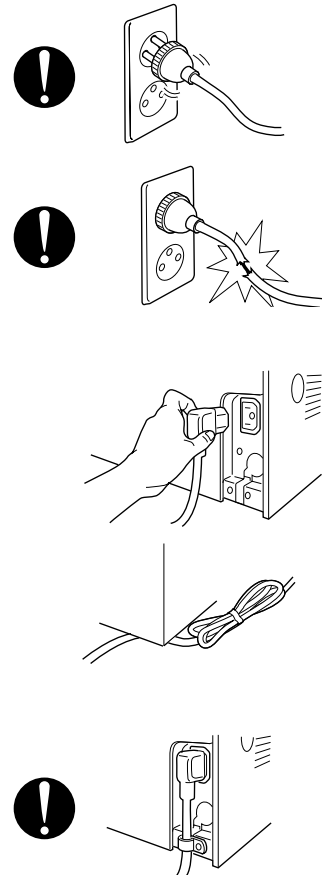
Secure the cord with a fixture properly.

- b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by Minolta.

If the power cord (inlet type) is not connected to the copier securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

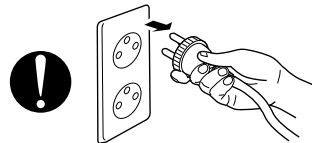
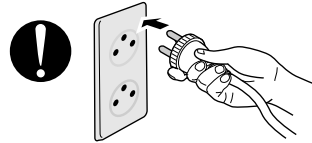
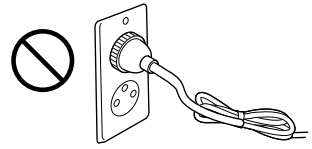
- Check whether the power cord is not stepped on or pinched by a table and so on.

Overheating may occur there, leading to a risk of fire.



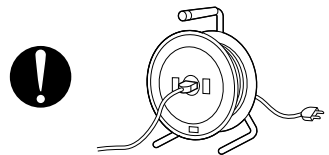
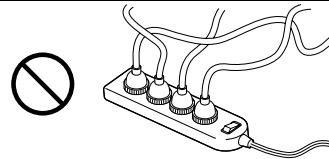
WARNING: Power Plug and Cord

- Do not bundle or tie the power cord.
Overheating may occur there, leading to a risk of fire.
- Check whether dust is collected around the power plug and wall outlet.
Using the power plug and wall outlet without removing dust may result in fire.
- Do not insert the power plug into the wall outlet with a wet hand.
The risk of electric shock exists.
- When unplugging the power cord, grasp the plug, not the cable.
The cable may be broken, leading to a risk of fire and electric shock.



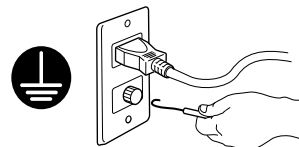
WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.
If used, the risk of fire exists.
- When an extension cord is required, use a specified one.
Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
Do not use an extension cable reel with the cable taken up. Fire may result.



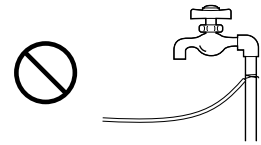
WARNING: Ground Lead

- Check whether the copier is grounded properly.
If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
 - a. Ground terminal of wall outlet
 - b. Ground terminal for which Class D work has been done

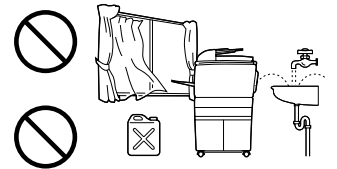


! WARNING: Ground Lead

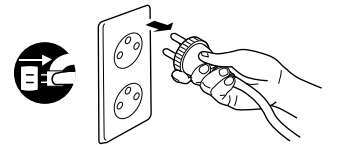
- Pay attention to the point to which the ground lead is connected.
Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
 - a. Gas pipe (A risk of explosion or fire exists.)
 - b. Lightning rod (A risk of electric shock or fire exists.)
 - c. Telephone line ground (A risk of electric shock or fire exists in the case of lightning.)
 - d. Water pipe or faucet (It may include a plastic portion.)

**2. Installation Requirements****! WARNING: Prohibited Installation Place**

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.
A risk of fire exists.
- Do not place the copier in a place exposed to water such as rain water.
A risk of fire and electric shock exists.

**! WARNING: Nonoperational Handling**

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
Dust collected around the power plug and outlet may cause fire.

**! CAUTION: Temperature and Humidity**

- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.
A risk of degradation in copier performance or deformation exists.
Do not place the copier in a place exposed to cool wind.
Recommended temperature and humidity are as follows:
Temperature: 10°C to 30°C
Humidity: 10% to 80% (no dew condensation)
Avoid other environments as much as possible.

**! CAUTION: Ventilation**

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.
Place the copier in a well ventilated place to prevent machine problems and image faults.

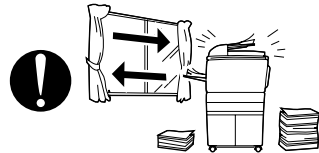


! CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.

If a bad smell of ozone is present in the following cases, ventilate the room.

- When the copier is used in a poorly ventilated room
- When taking a lot of copies
- When using multiple copiers at the same time

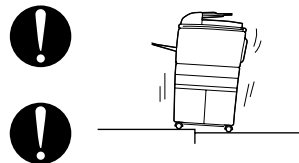
**! CAUTION: Vibration**

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.

Constant vibration will cause problems.

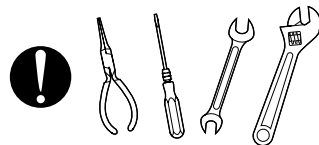
- Be sure to lock the caster stoppers.

In the case of an earthquake and so on, the copier may slide, leading to a injury.

**! CAUTION: Inspection before Servicing**

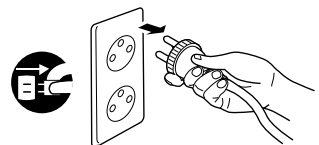
- Before conducting an inspection, read all relevant documentation (Service Manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure, using only the prescribed tools. Do not make any adjustment not described in the documentation.

If the prescribed procedure or tool is not used, the copier may break and a risk of injury or fire exists.



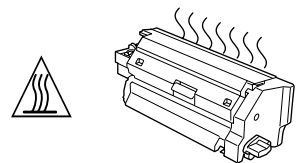
- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.

When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.



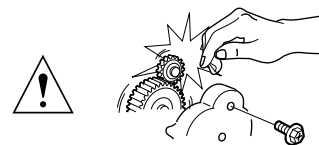
- The area around the fixing unit is hot.

You may get burnt.

**! DANGER: Work Performed with the Copier Powered**

- Take every care when making adjustments or performing an operation check with the copier powered.

If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



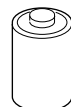
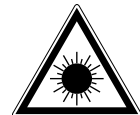
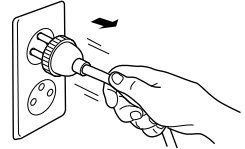
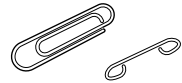
⚠ DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached.
High-voltage exists around the drum unit. A risk of electric shock exists.



⚠ WARNING: Safety Checkpoints

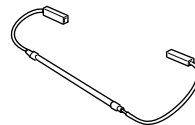
- Check the exterior and frame for edges, burrs, and other damages.
The user or CE may be injured.
- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.
They can short internal circuits and cause electric shock or fire.
- Check wiring for squeezing and any other damage.
Current can leak, leading to a risk of electric shock or fire.
- When disconnecting connectors, grasp the connector, not the cable.
(Specifically, connectors of the AC line and high-voltage parts)
Current can leak, leading to a risk of electric shock or fire.
- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.
Current can leak, leading to a risk of copier trouble or fire.
- Check high-voltage cables and sheaths for any damage.
Current can leak, leading to a risk of electric shock or fire.
- Check electrode units such as a charging corona unit for deterioration and sign of leakage.
Current can leak, leading to a risk of trouble or fire.
- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.
The laser light can enter your eye, leading to a risk of loss of eyesight.
- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.
The laser light can enter your eye, leading to a risk of loss of eyesight.
- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.
Improper replacement can cause explosion.



⚠ WARNING: Safety Checkpoints

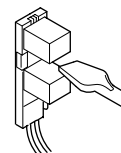
- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.

A risk of fire exists.



- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.

If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).



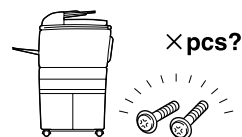
- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

Current can leak, leading to a risk of electric shock or fire.



- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

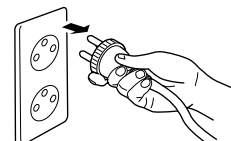
A risk of copier trouble, electric shock, and fire exists.



⚠ HANDLING OF MATERIALS FOR SERVICING

- Unplug the power cord from the wall outlet.

Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.

A risk of fire exists.



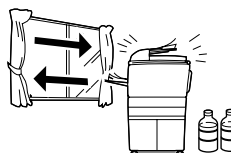
- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

A risk of fire exists.



- When using any solvent, ventilate the room well.

Breathing large quantities of organic solvents can lead to discomfort.



⚠ DANGER: HANDLING OF MATERIALS FOR SERVICING

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

If the substances get in the eye, rinse with plenty of water immediately.
When symptoms are noticeable, consult a physician.



- Never throw the used cartridge and toner into fire.
You may be burned due to dust explosion.

**[3] CONCLUSION**

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION**IMPORTANT INFORMATION**

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.

Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

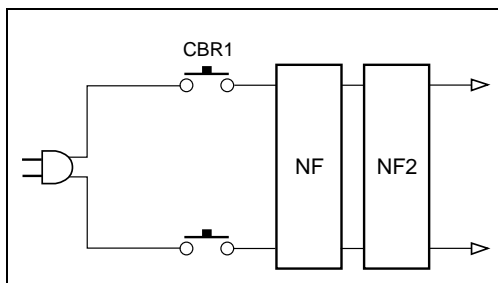
SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.

- [1] Overall protection circuit
- [2] L2 and L4 (fixing heater lamps) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

[1] Overall Protection Circuit



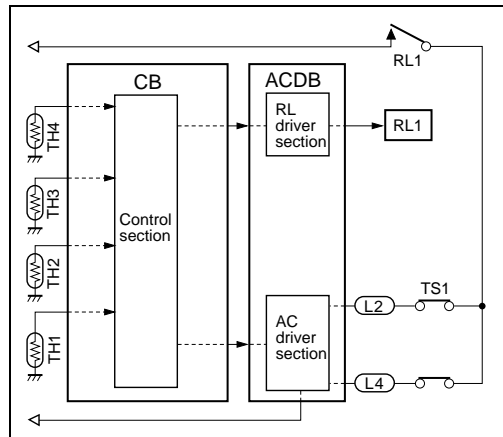
1. Protection by CBR1 and CBR2 (circuit breakers)

CBR1 interrupts the AC line instantaneously when an excessive current flows due to a short in the AC line.

⚠ CAUTION:

The CBR1 and CBR2 functions must not be deactivated under any circumstances.

[2] Protection by L2 and L4 (fixing heater lamps) overheating prevention circuit



1. Protection by software

The output voltage from TH1 (fixing temperature sensor 1) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp 1), and L4 (fixing heater lamp 3), and RL1 (main relay) are turned OFF.

⚠ CAUTION:

Do not change the gap between the roller and TH1. When replacing TH1, check the specified mounting dimensions.

The RL1 function must not be deactivated under any circumstances.

2. Protection by the hardware circuit

The output voltages from TH1 and TH2 (fixing temperature sensor 2), TH3 (fixing temperature sensor 3), and TH4 (fixing temperature sensor 4) are compared with the abnormality judgement reference value in the comparator circuit. If the output voltage from TH1, TH2, TH3, or TH4 exceeds the reference value, L2, L4, and RL1 are turned off in hardware means.

⚠ CAUTION:

Periodically check the TH2 and TH4 faces contacting the roller, and replace TH2 and/or TH4 if any abnormality is detected. Do not change the gap between the roller and each sensor TH2 and TH4. When replacing TH2 or TH4, check the specified mounting dimensions.

The RL1 function must not be deactivated under any circumstances.

3. Protection by TS1 (thermostat (upper)) and TS2 (thermostat (lower))

TS1 is turned off when the temperature of the fixing roller (upper) exceeds the specified value, and TS2 is turned off when the temperature of the heating (upper) roller exceeds the specified value, thus interrupting the power to L2 and L4 directly.

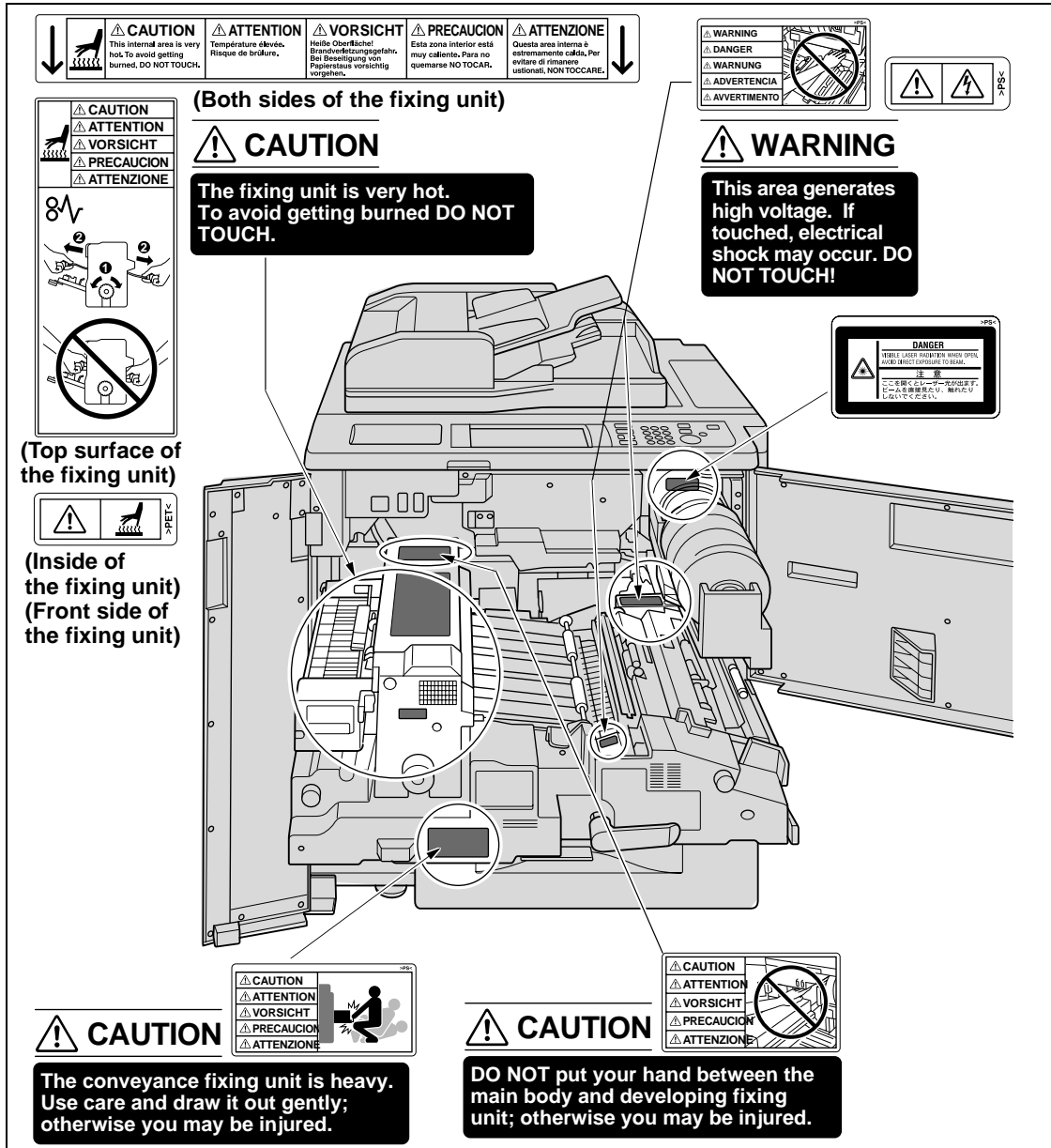
⚠ CAUTION:

Do not use any other electrical conductor in place of TS1 and TS2.

INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine areas.

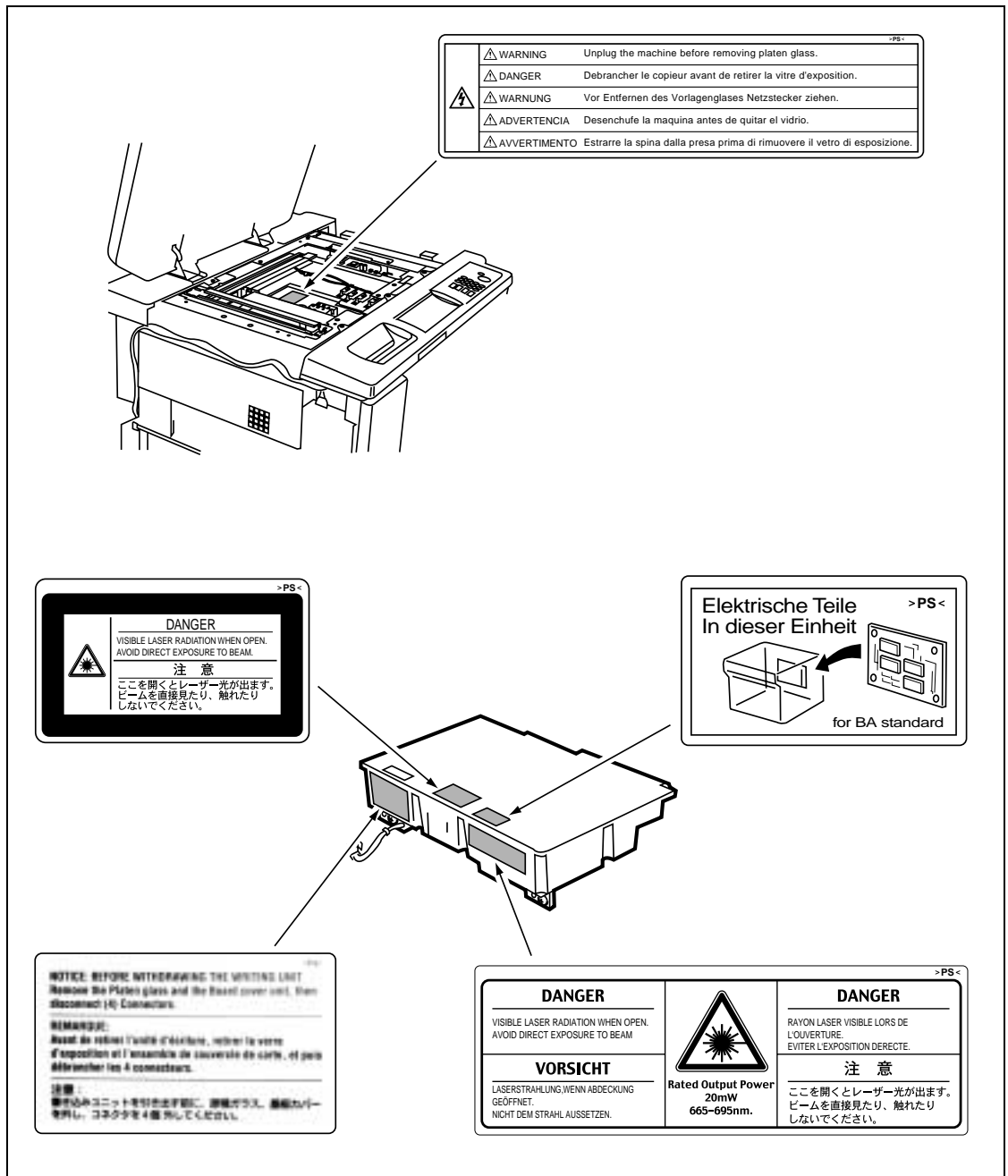
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and shock hazards.



⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

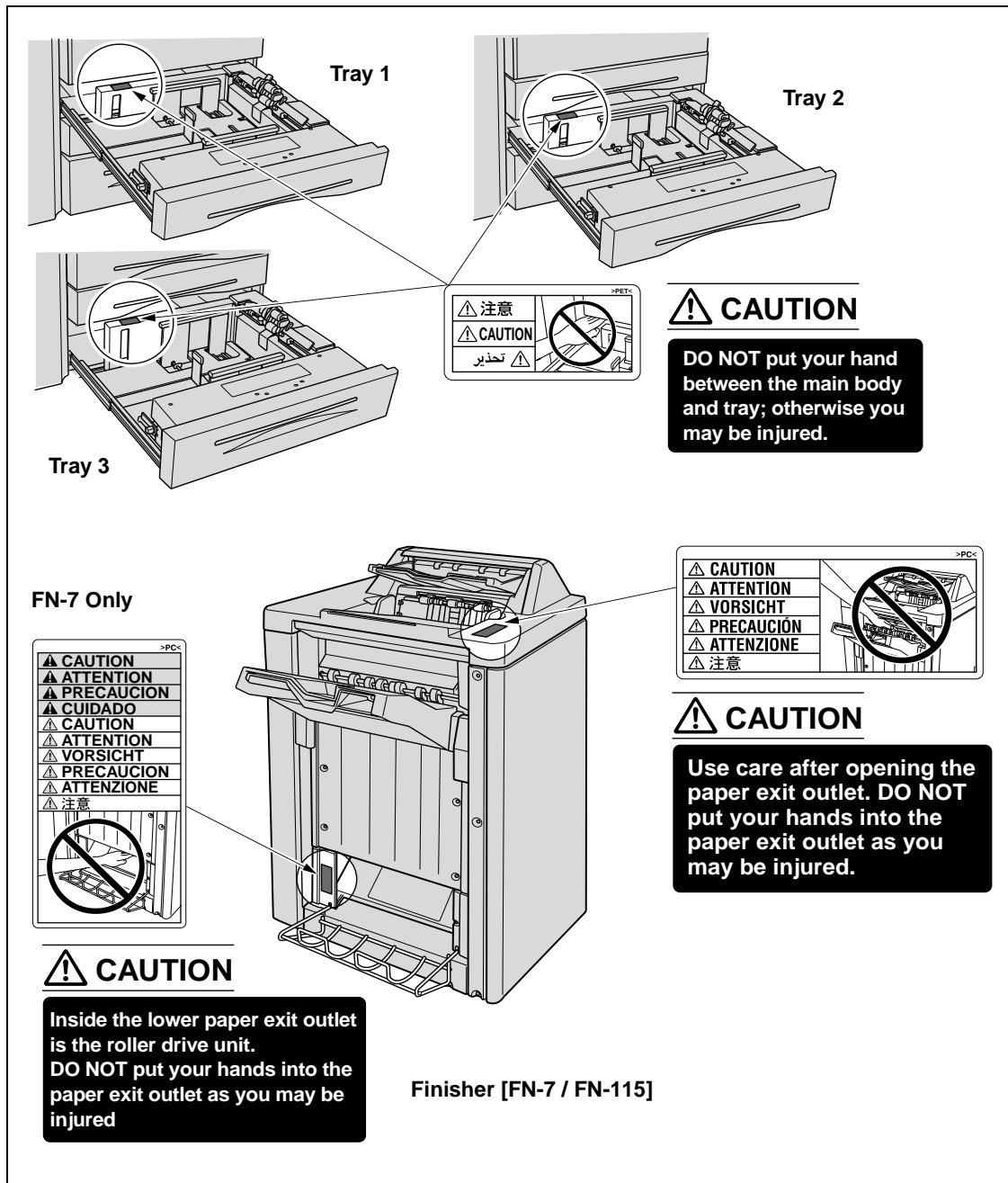
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



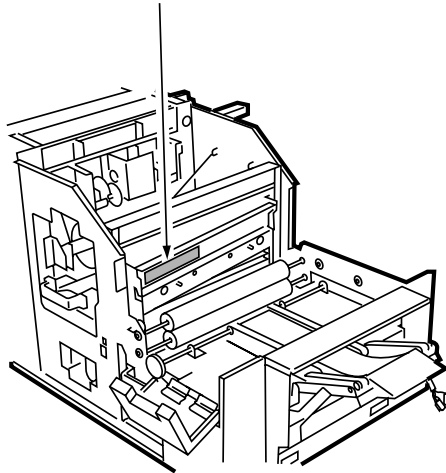
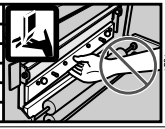
⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

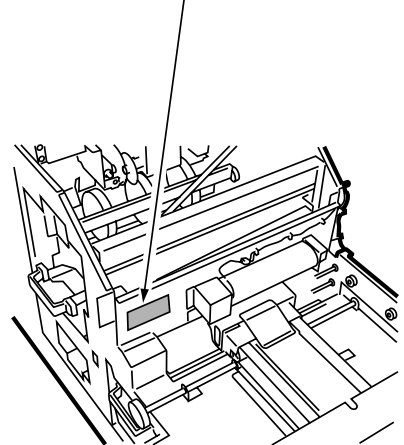
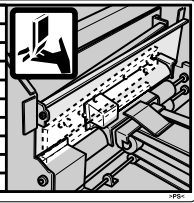
⚠ WARNING

⚠ WARNING	⚠ WARNING
⚠ DANGER	⚠ DANGER
⚠ ADVERTENCIA	⚠ ADVERTENCIA
⚠ ADVERTÊNCIA	⚠ ADVERTIMENTO
⚠ 警告	⚠ 警告



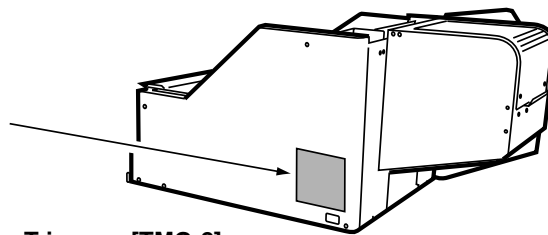
⚠ CAUTION

⚠ CAUTION	⚠ CAUTION
⚠ ATTENTION	⚠ ATTENTION
⚠ PRECAUCIÓN	⚠ PRECAUCIÓN
⚠ CUIDADO	⚠ CUIDADO
⚠ CAUTION	⚠ CAUTION
⚠ ATTENTION	⚠ ATTENTION
⚠ VORSICHT	⚠ VORSICHT
⚠ PRECAUCIÓN	⚠ PRECAUCIÓN
⚠ ATTENZIONE	⚠ ATTENZIONE
⚠ 注意	⚠ 注意



⚠ WARNING

⚠ WARNING	Unplug the machine before removing panels.
⚠ DANGER	D brancher l'appareil avant de retirer les panneaux anti-ries.
⚠ ADVERTENCIA	Desenchufe la máquina antes de quitar los paneles.
⚠ ADVERTENCIA	Desconecte a unidade da tomada antes de remover os painéis.
⚠ WARNING	Unplug the machine before removing panels.
⚠ DANGER	D brancher l'appareil avant de retirer les panneaux anti-ries.
⚠ WARNING	Vor Abnahme der Schutzverkleidung Netzstecker ziehen.
⚠ ADVERTENCIA	Desenchufe la máquina antes de quitar los paneles.
⚠ ADVERTIMENTO	Desconecte a máquina prima di rimuovere i pannelli.
⚠ 警告	パネルを外す時は、電源プラグを抜いてください。
⚠ 警告	在取下防護板之前，請拔出電源插頭。
⚠ 警告	在取下防護板之前，請拔出電源插頭。
⚠ 注意	اسحب مأخذ طاقة الآلة قبل إزالة الفرجة الخلفية.

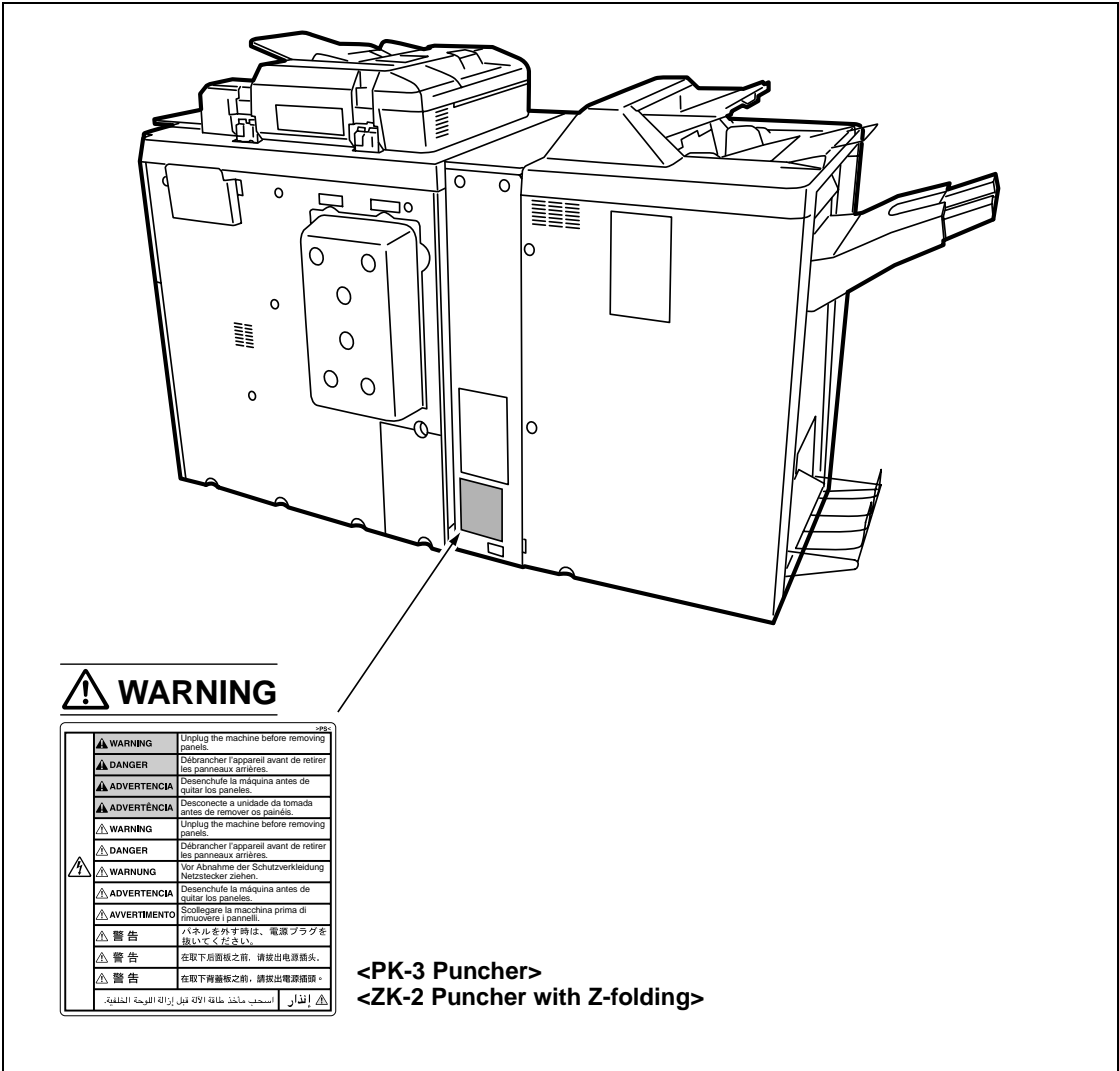


Trimmer [TMG-2]

⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



CAUTION

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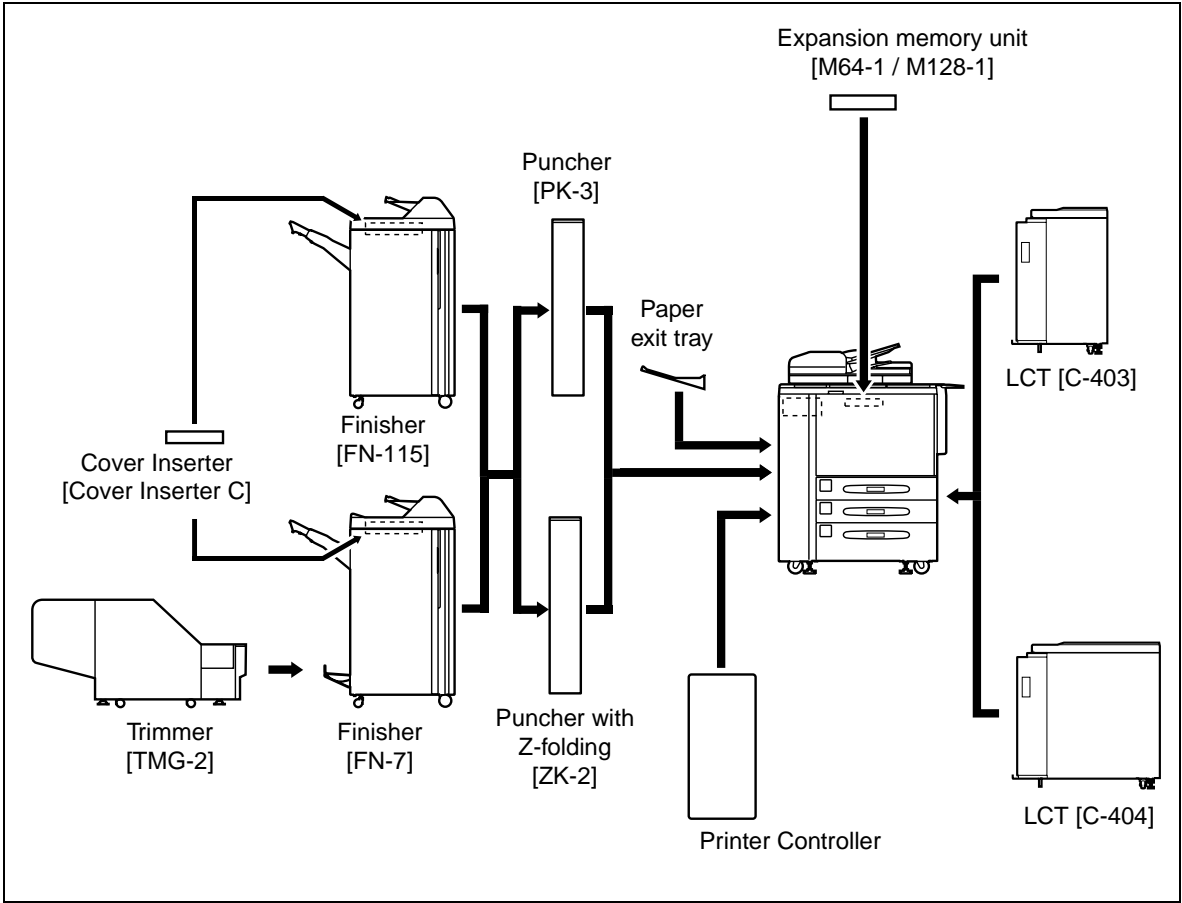
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



OUTLINE

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OUTLINE OF SYSTEM



PRODUCT SPECIFICATIONS

[1] Type

Installation Type:

Console type (floor-mounted type)

Copying method:

Indirect electrostatic method

Document tray type:

Fixed

Photosensitive material:

OPC

Sensitizing method:

Laser writing

Paper feed trays:

Three stacked trays (two for 500 sheets of 80 g/m² or 20lbs. paper; one for 1000 sheets of 80 g/m² or 20lbs. paper)

A by-pass tray for various paper sizes (150 sheets of 80 g/m² or 20 lbs. paper)

LCT (4000 sheets of 80 g/m² or 20 lbs. paper)*1

*1: Optional

[2] Functions

Applicable document types:

Sheets, book, solid object

Document size:

A3 (11x17) max.

Copy paper size:

• Metric area

A3 to A5, 11x17 to 8.5 x11, F4

• Inch Area

11x17 to 8.5 x5.5, A3 to B5R, F4

Wide paper (max. 314x445mm)*2

*2: When using C404

Paper size for ADU paper passage:

Max. 314 x 459 mm to A5 or

8.5 x 5.5 min.

Magnifications

Fixed magnifications:

• Metric area

x1.00, x2.00, x1.41, x1.22, x1.15,
x0.86, x0.82, x0.71, x0.50

• Inch Area

x1.00, x4.00, x2.00, x1.55, x1.29,
x0.77, x0.65, x0.50

Special ratio magnifications:

3 modes

Zoom magnifications:

x0.25 to x4.00 (600 dpi, in 1% steps)

Vertical magnifications:

x0.25 to x4.00 (600 dpi, in 1% steps)

Horizontal magnifications:

x0.25 to x4.00 (600 dpi, in 1% steps)

Warm-up time:

Less than 6 minutes*2

*2: 6 minutes is the machine for the 230VAC specification.

Warm-up time differs depending on the Power source (voltage).

First copy out time:

Mode	A4, 8.5x11
Manual	3.3 seconds or less

*Straight paper ejection with the copied image facing up, platen mode, life size, paper feed from tray 1

Continuous copy speed (life size, copies/min):

Size	cpm
A4, 8.5x11	85

Continuous copy count:

1 to 9999

Copy density selections:

AE, manual

Arbitrary density (2 modes)

E-RDH memory capacity:

standard 128 MB

maximum 512 MB

[3] Applicable Copy Paper**Plain paper:**

High quality paper 60 to 90 g/m²
or 17 to 24 lbs

Special paper:

High quality paper
50 to 59 g/m², 91 to 170 g/m² or
13 to 16 lbs, 24 to 40 lbs

Bypass feed only:

Label paper
OHP Film
Blueprint master paper

Tray feed only:

High quality paper
171 to 200 g/m² or 40 to 45 lbs

ADU paper passage:

High quality paper
60 to 200 g/m² or 17 to 45 lbs

[4] Options

LCT: C-403 / C-404

Expansion memory unit:

M64-1: 64MB
M128-1: 128MB

Finisher: FN-115 / FN-7

Post inserter: Cover Inserter C

Trimmer: TMG-2

Puncher: PK-3

Puncher with Z-folding :ZK-2

Paper exit tray

Printer Controller:

[5] Particulars of Machine**Power supply:**

230 VAC EURO: -14 to 10.6 %
USA : ±10 %

50 Hz/ 60 Hz

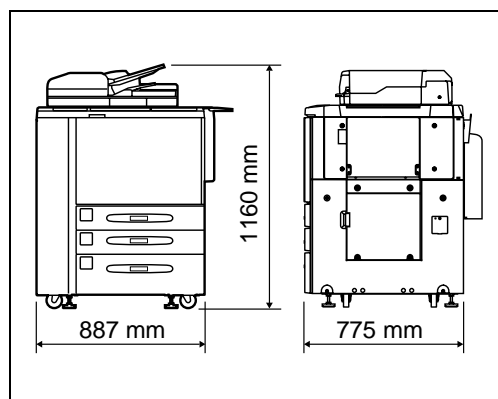
208 to 240 VAC 60 Hz

Power consumption:

230 V Machine: 3450 W max.
(Full option)

208 to 240 V Machine: 3840 W max.
(Full option)

Weight: Approx. 280 kg (617 lbs.)

Machine dimensions:**[6] Maintenance and Life****Periodic maintenance:**

Every 500,000 copies

Machine life:

30,000,000 copies or 5 years

[7] Consumables

Developer: Exclusively for Minolta Di850

Toner : Exclusively for Minolta Di850

Drum: Exclusively for Minolta Di850 (ø100)

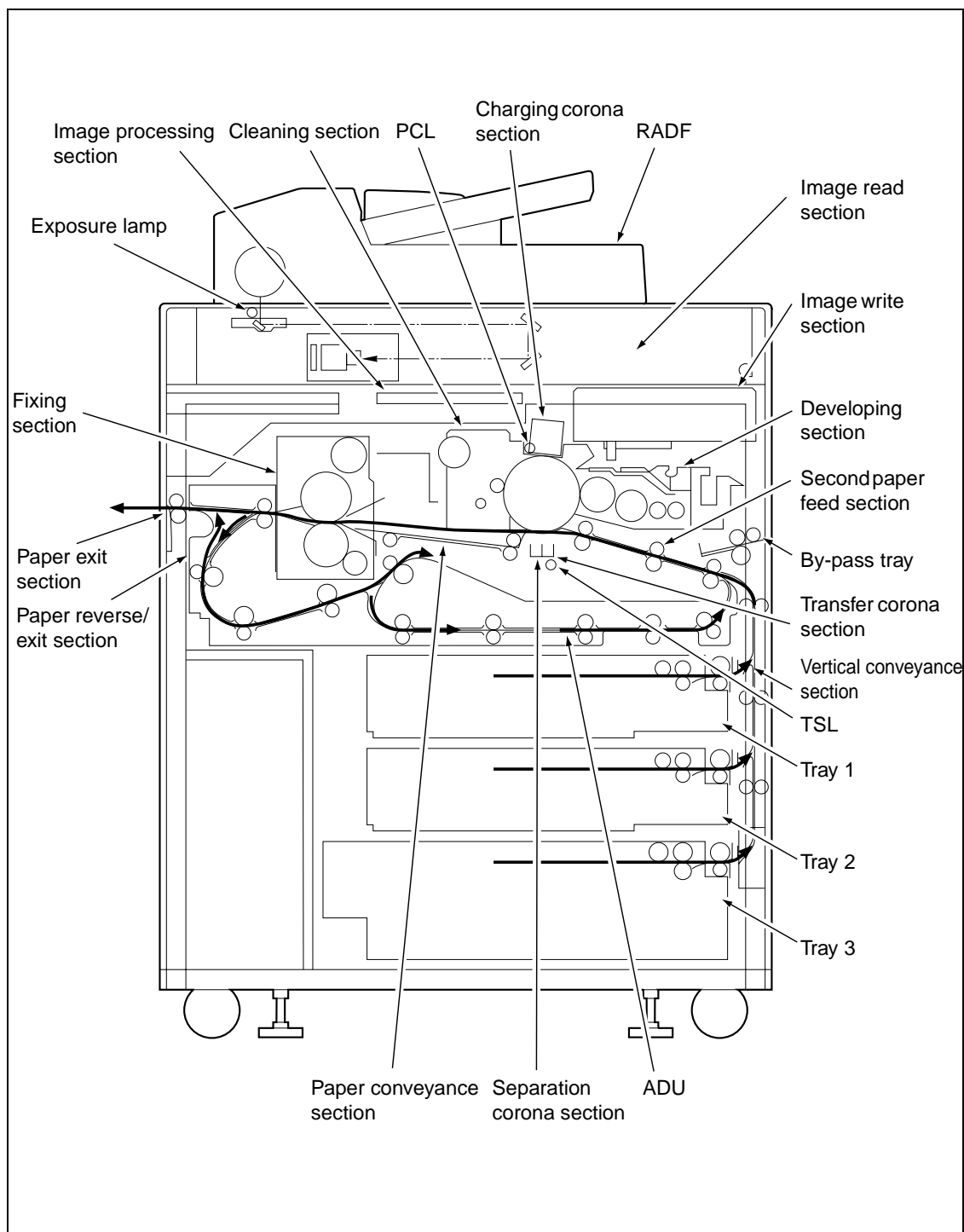
[8] Environmental Conditions**Temperature:**

10°C to 30°C (50°F to 86°F)

Humidity: 10% to 80% RH

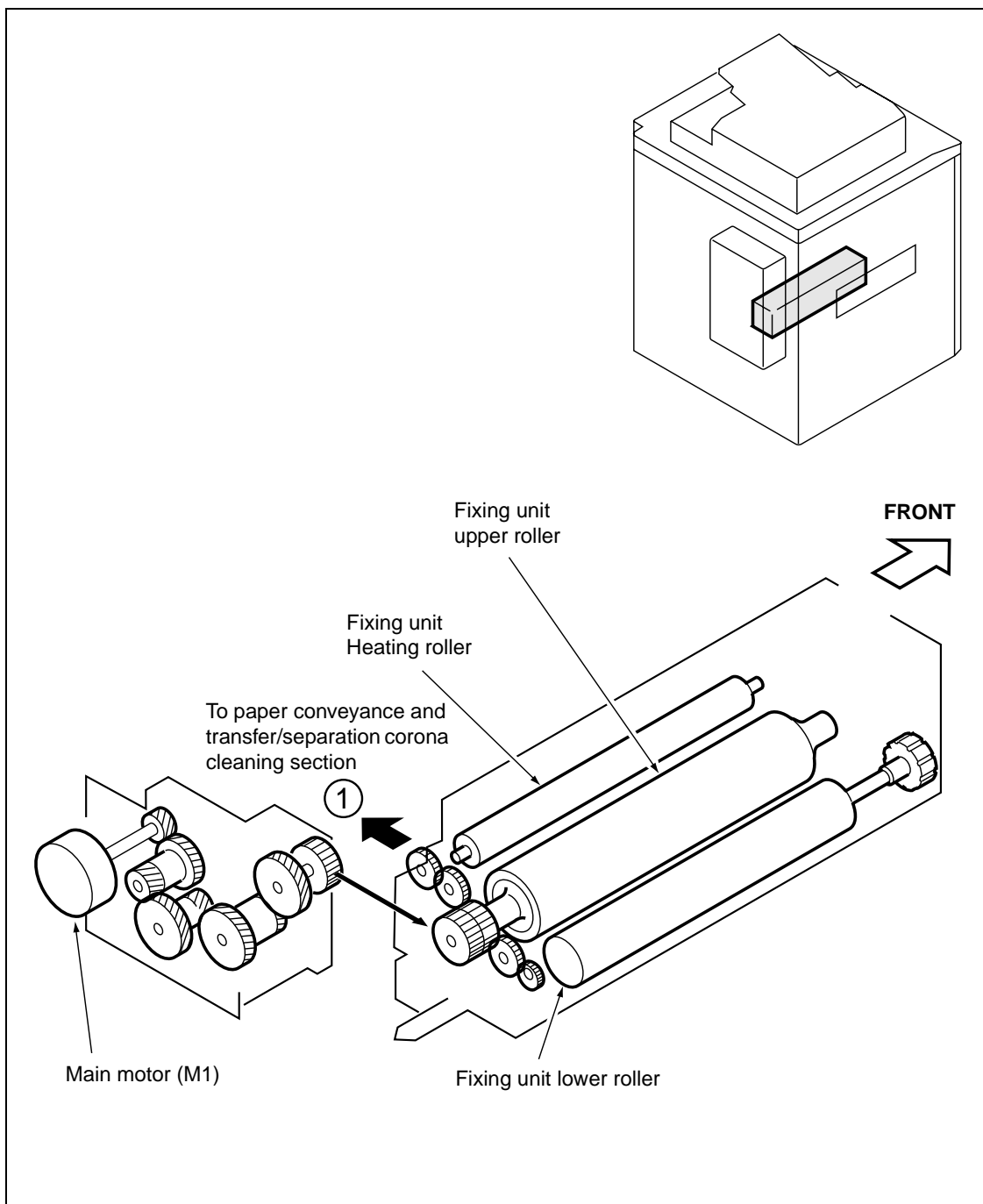
Note: The information herein may subject to
change for improvement without notice.

CENTER CROSS-SECTIONAL VIEW

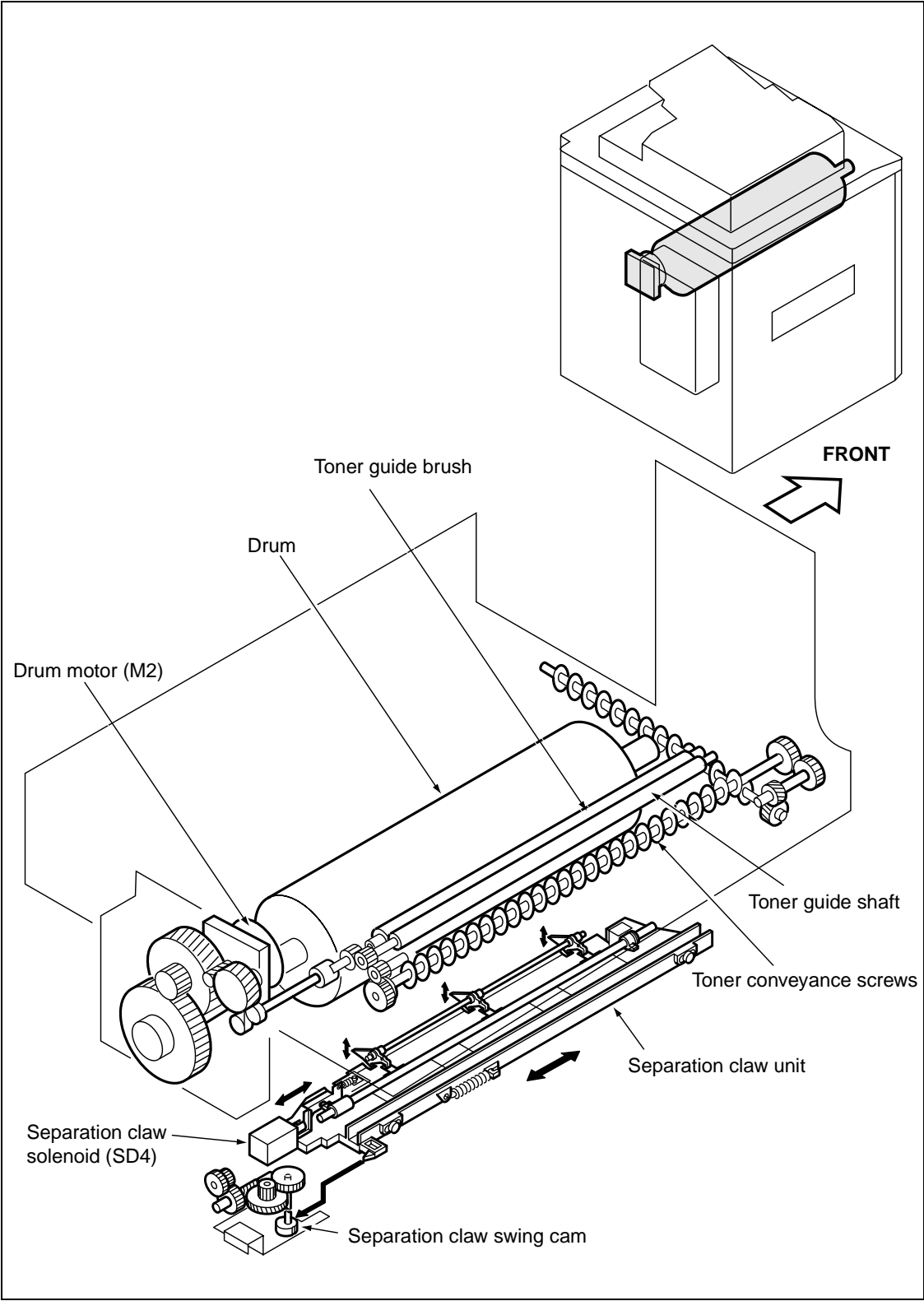


DRIVE SYSTEM DIAGRAM

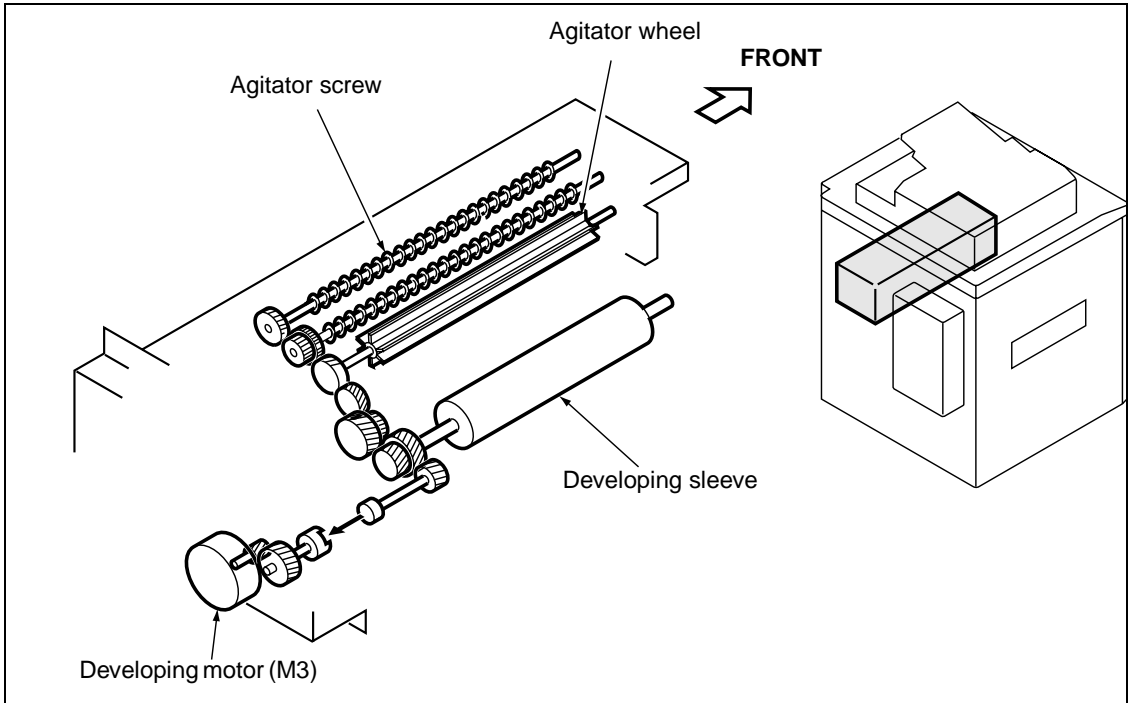
[1] Main Drive Section



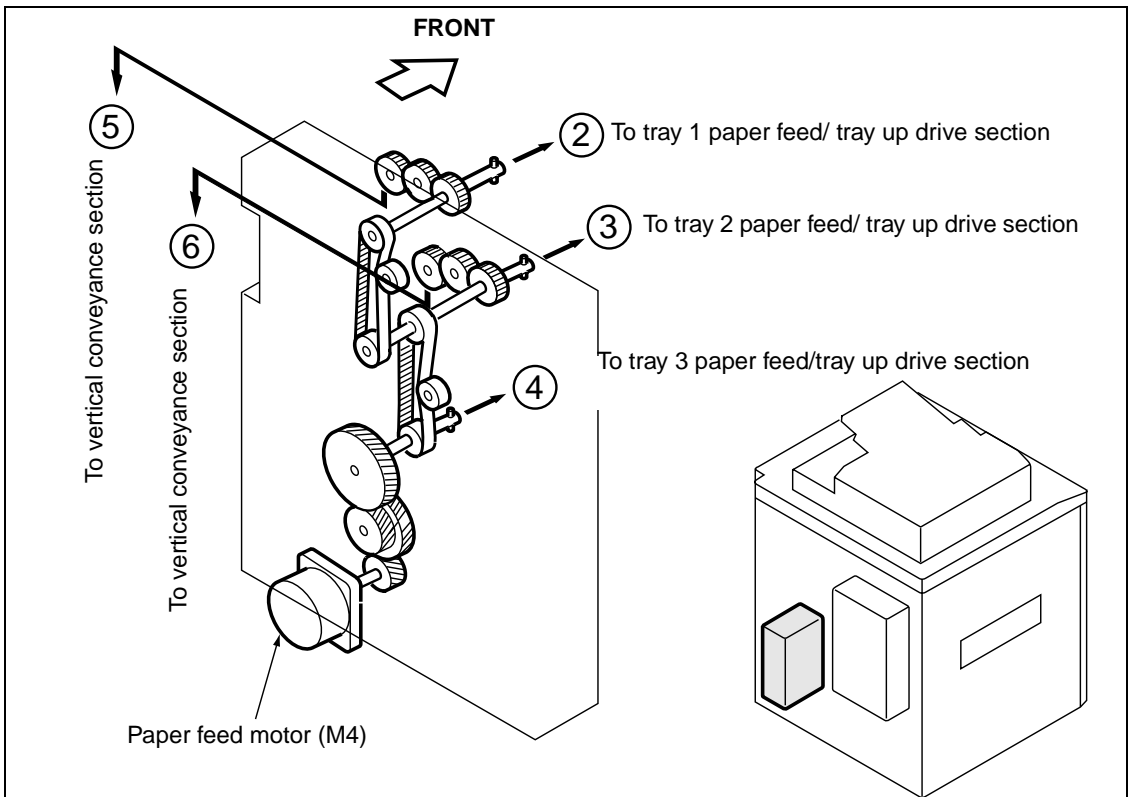
[2] Drum Drive Section



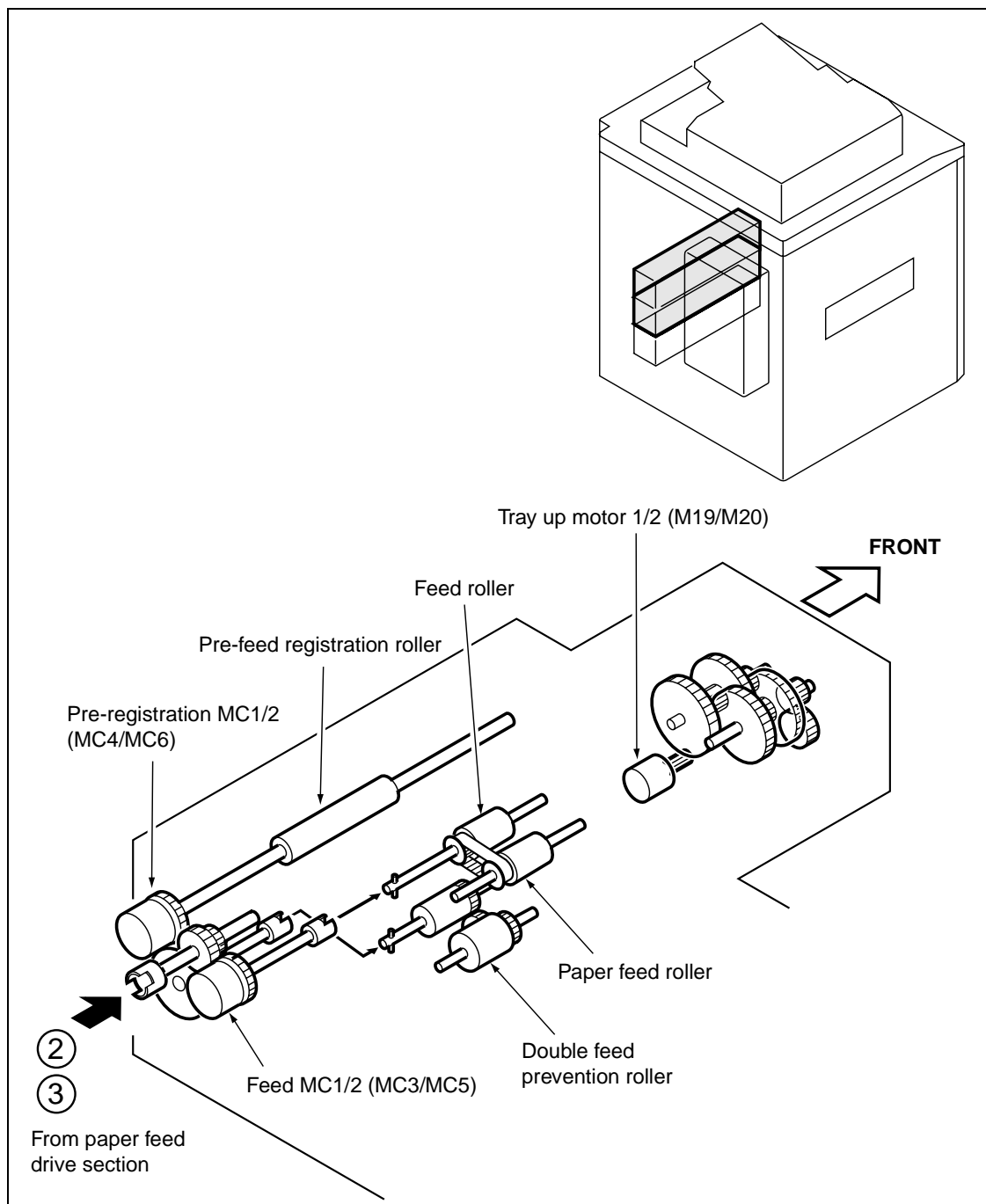
[3] Developing Drive Section



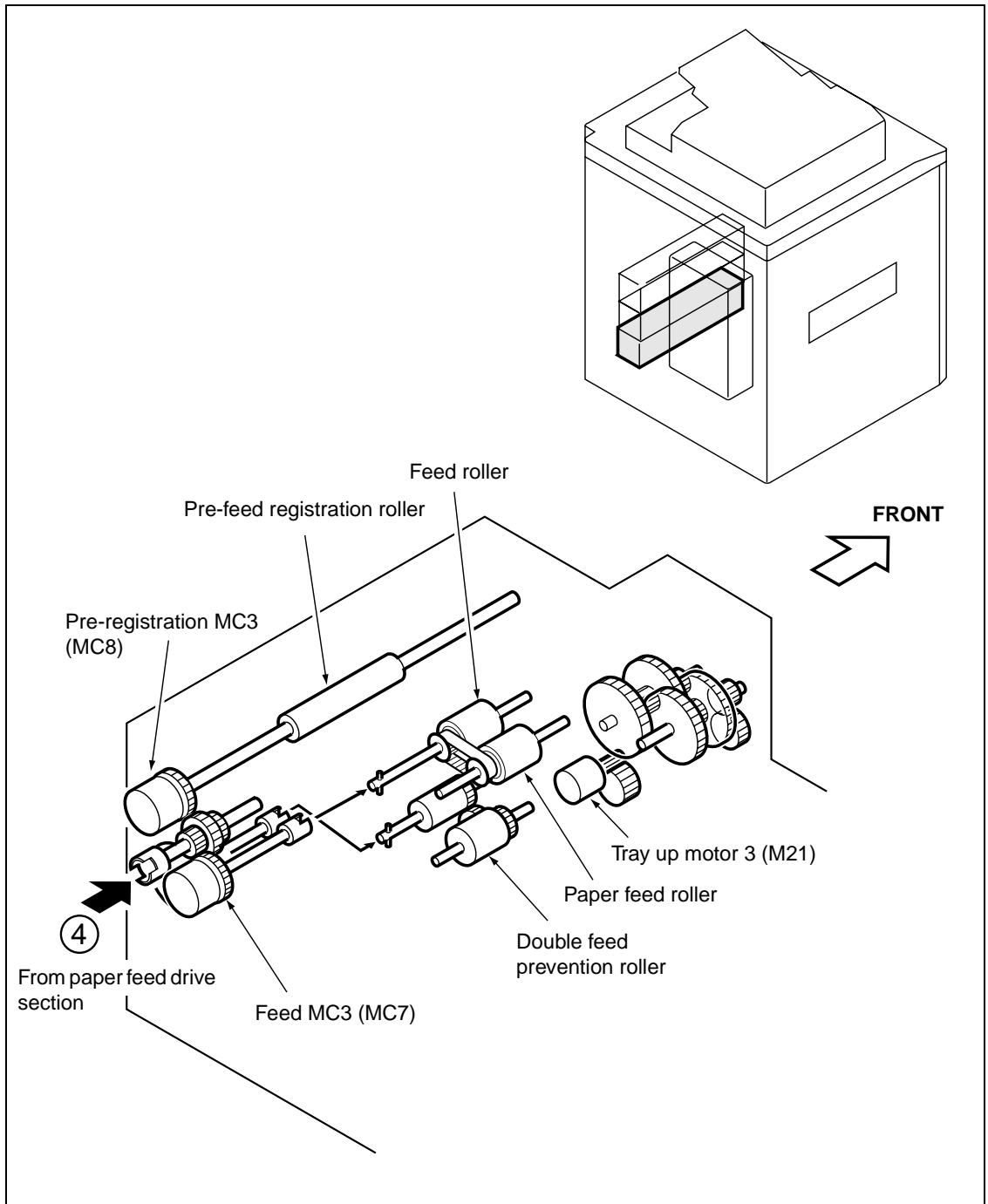
[4] Paper Feed Drive Section



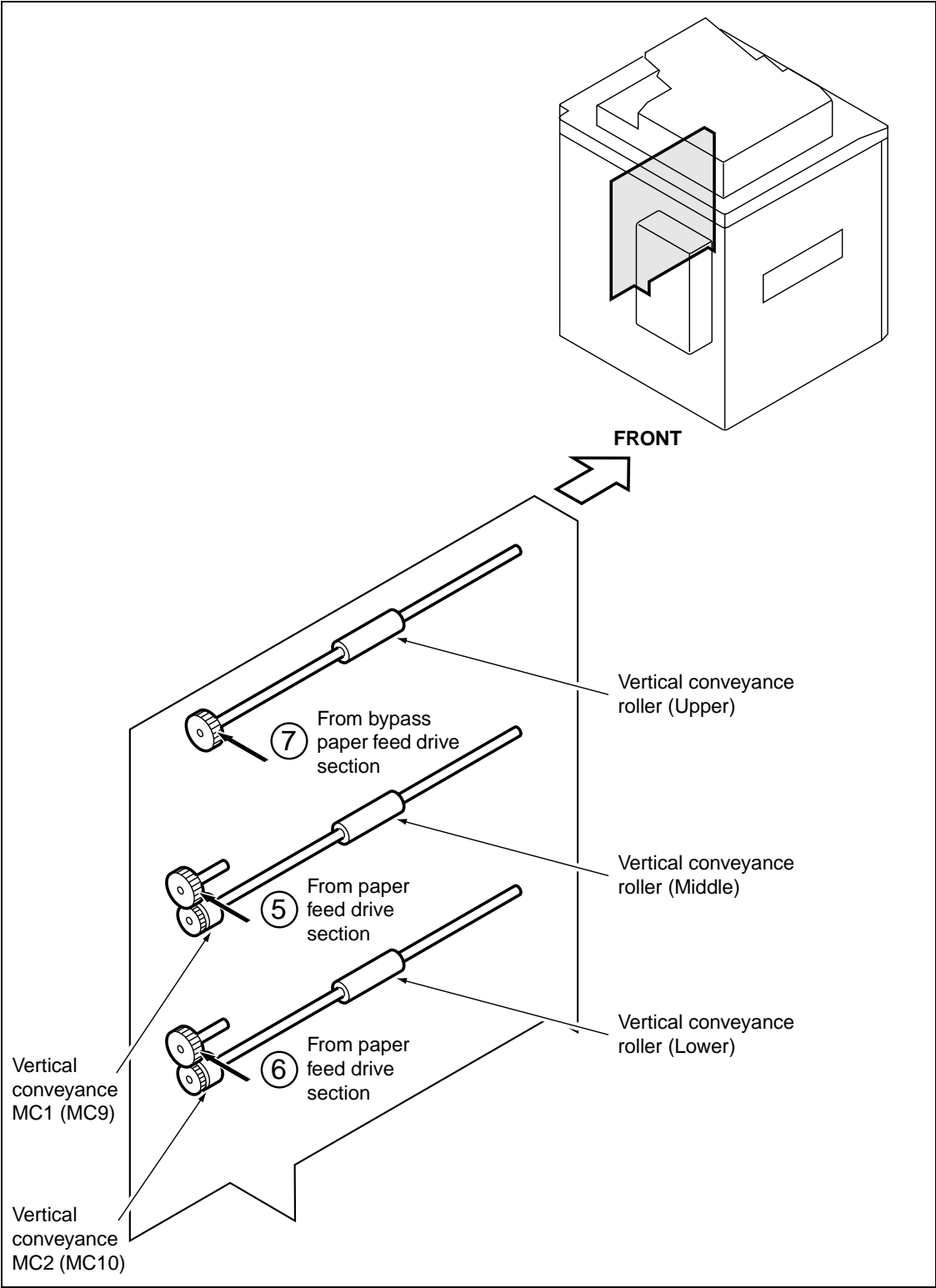
[5] Tray 1 and 2 Paper Feed Drive Section

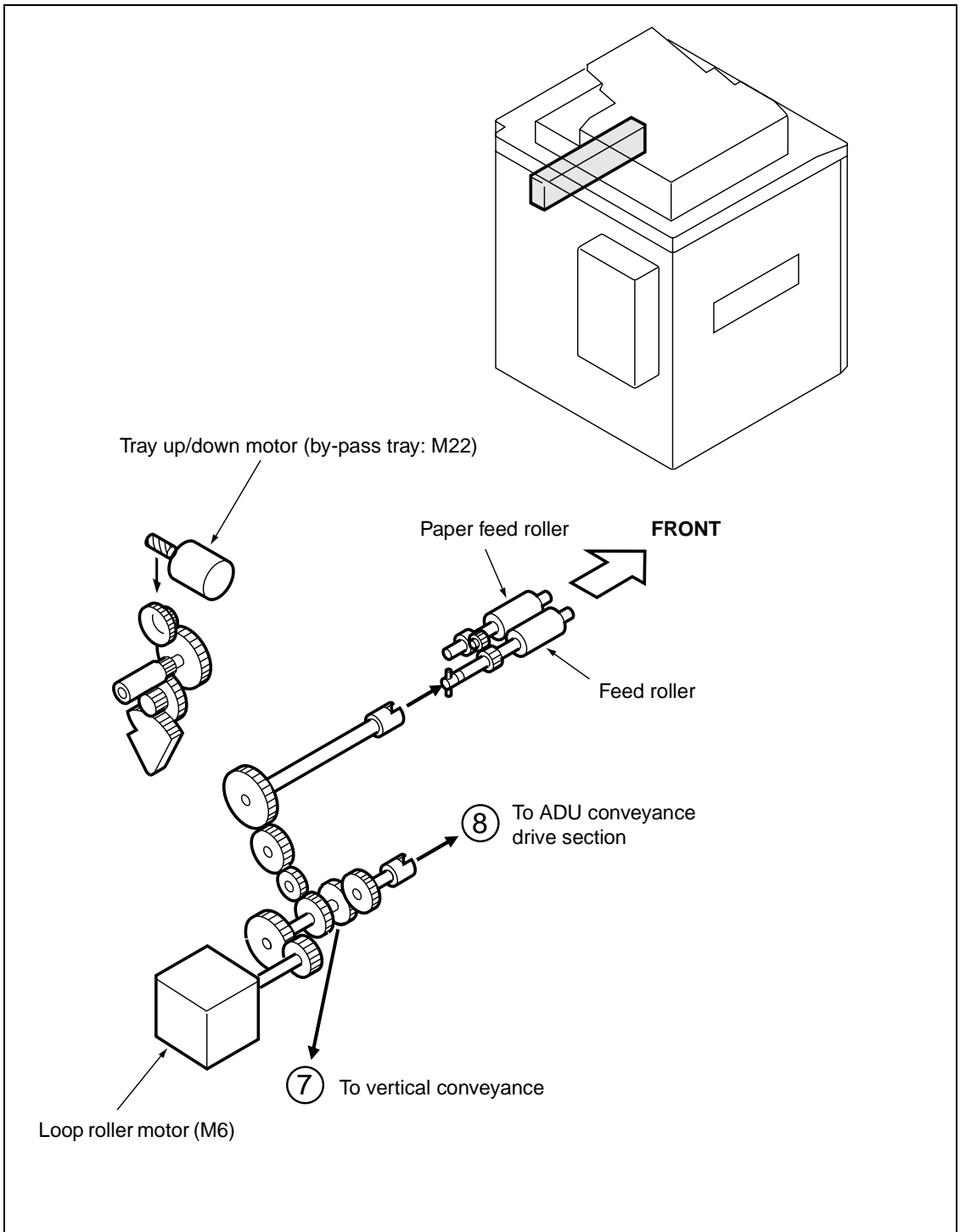


[6] Tray 3 Paper Feed Drive Section

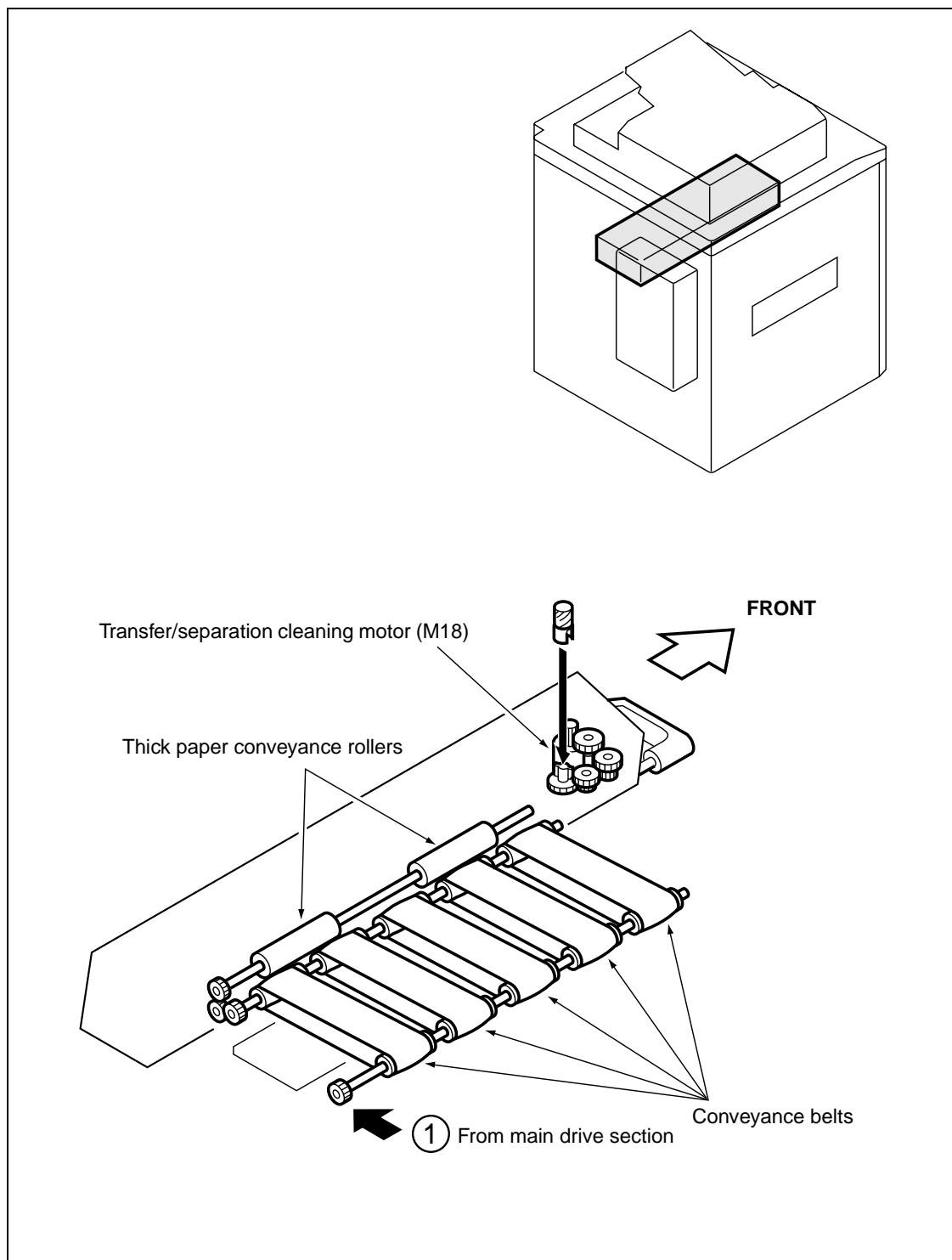


[7] Vertical Conveyance Drive Section

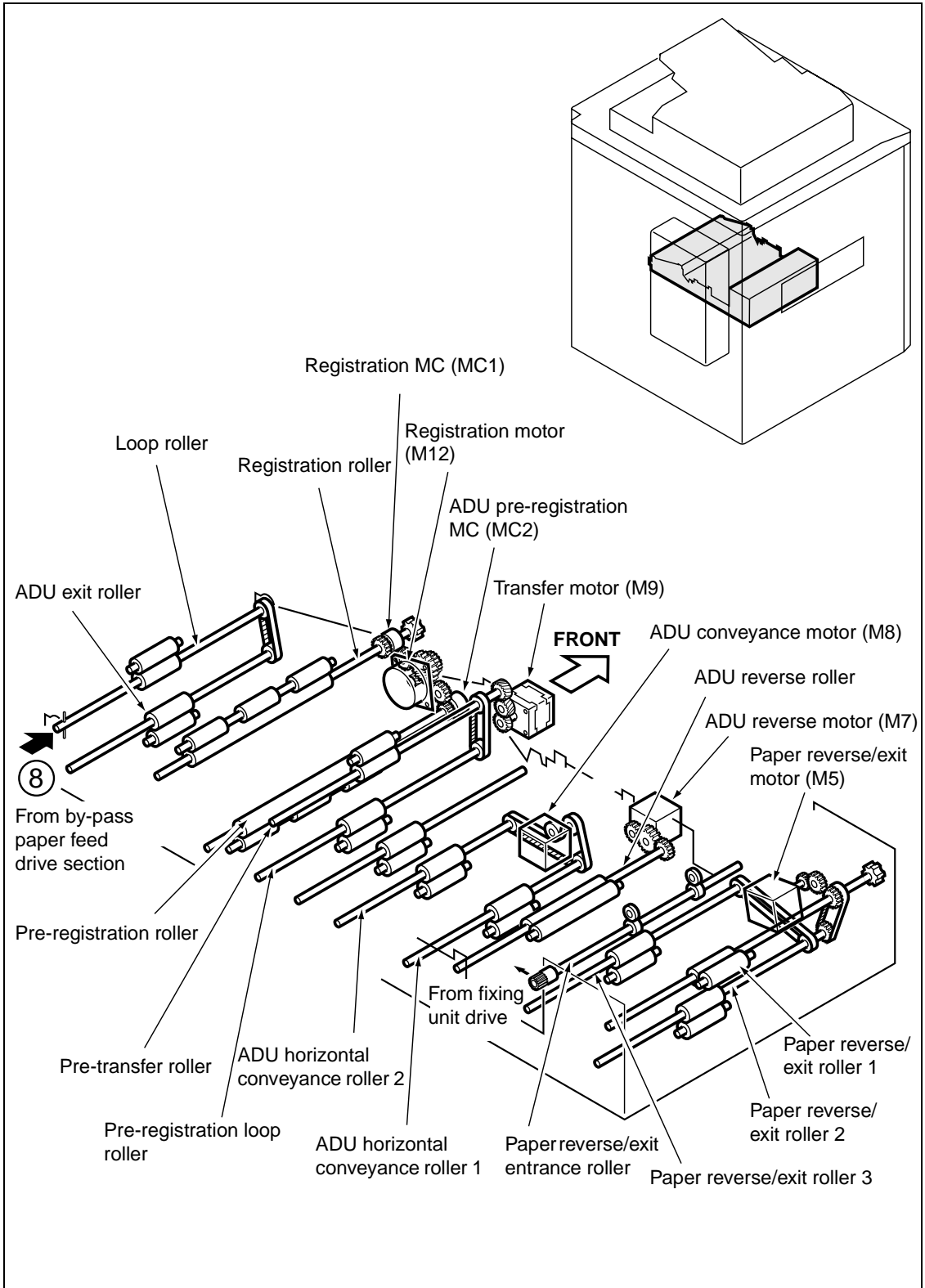


[8] By-pass Paper Feed Drive Section

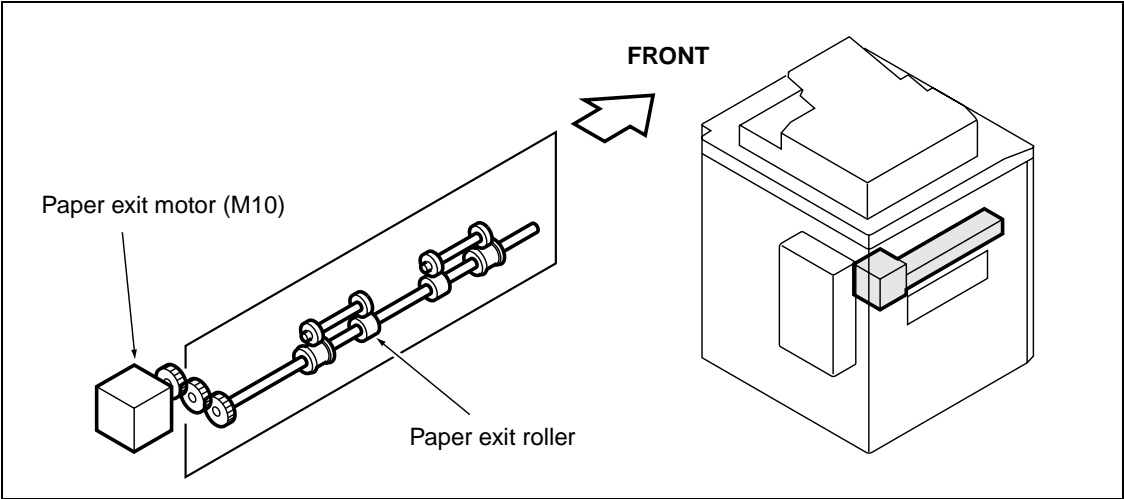
[9] Conveyance/Transfer and Separation Wire Cleaning Drive Section



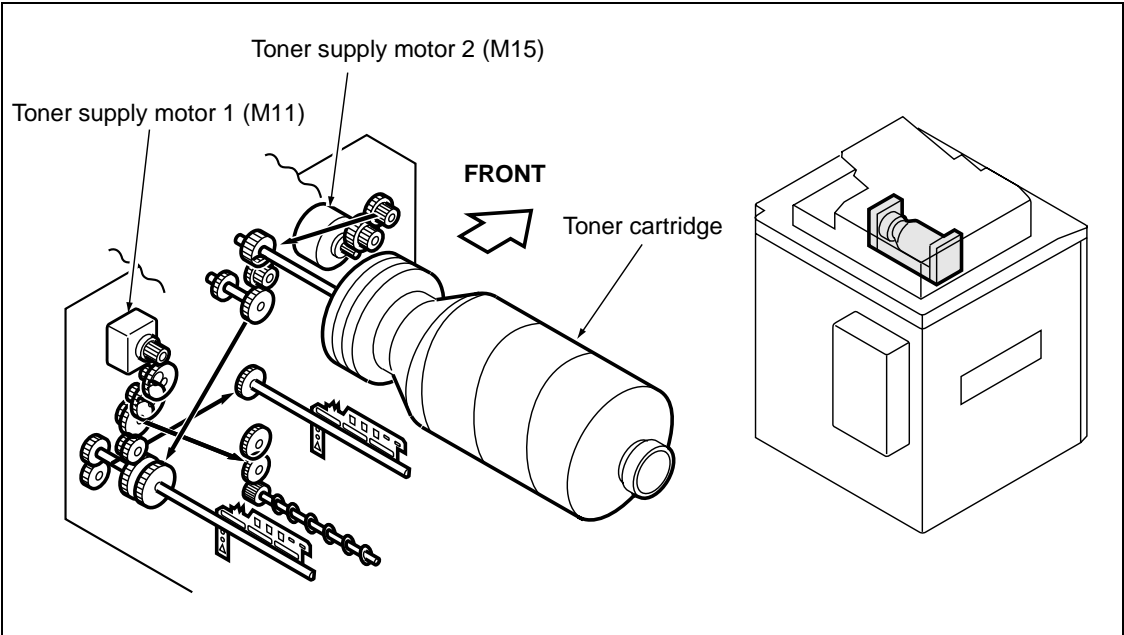
[10] ADU Conveyance Drive Section

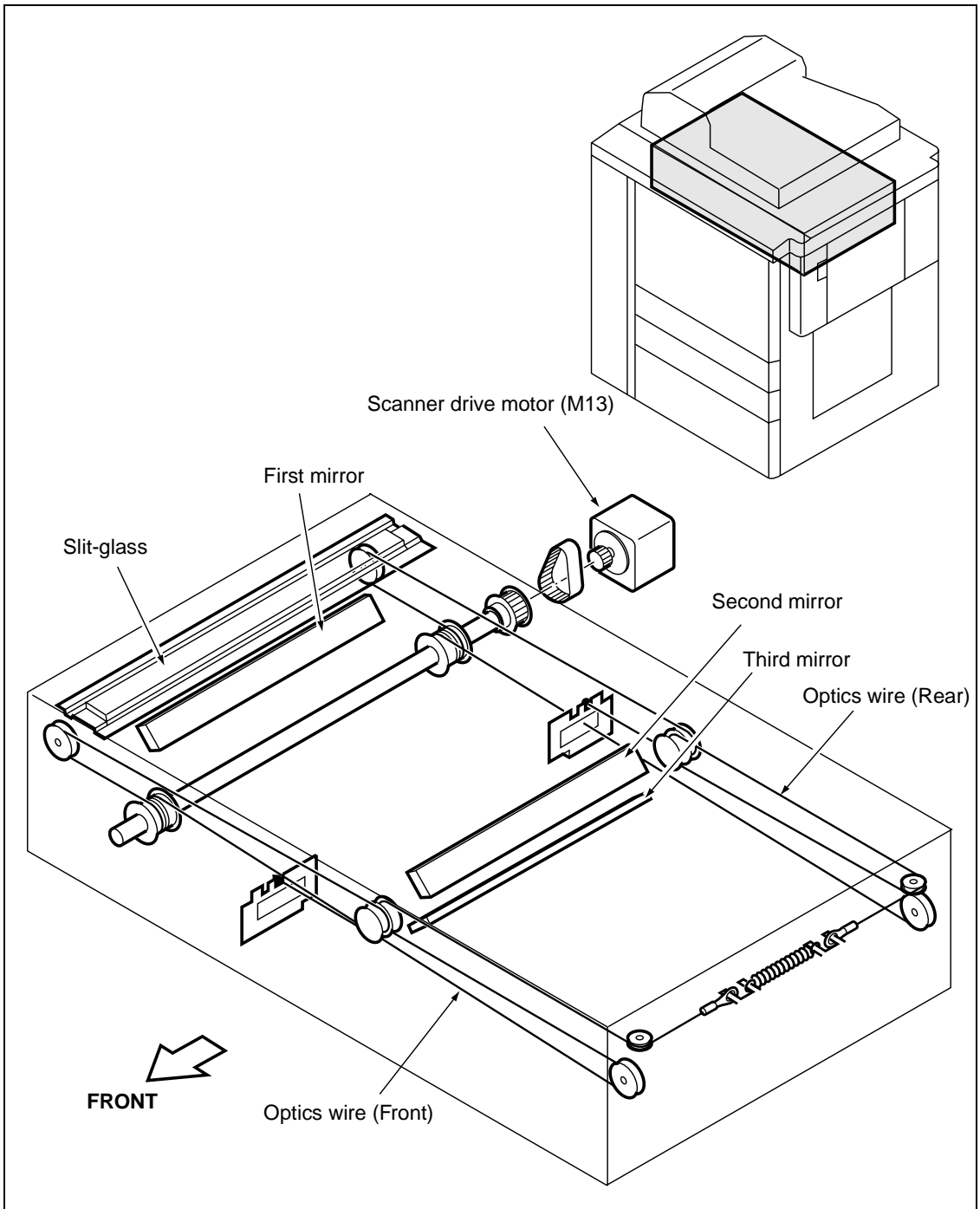


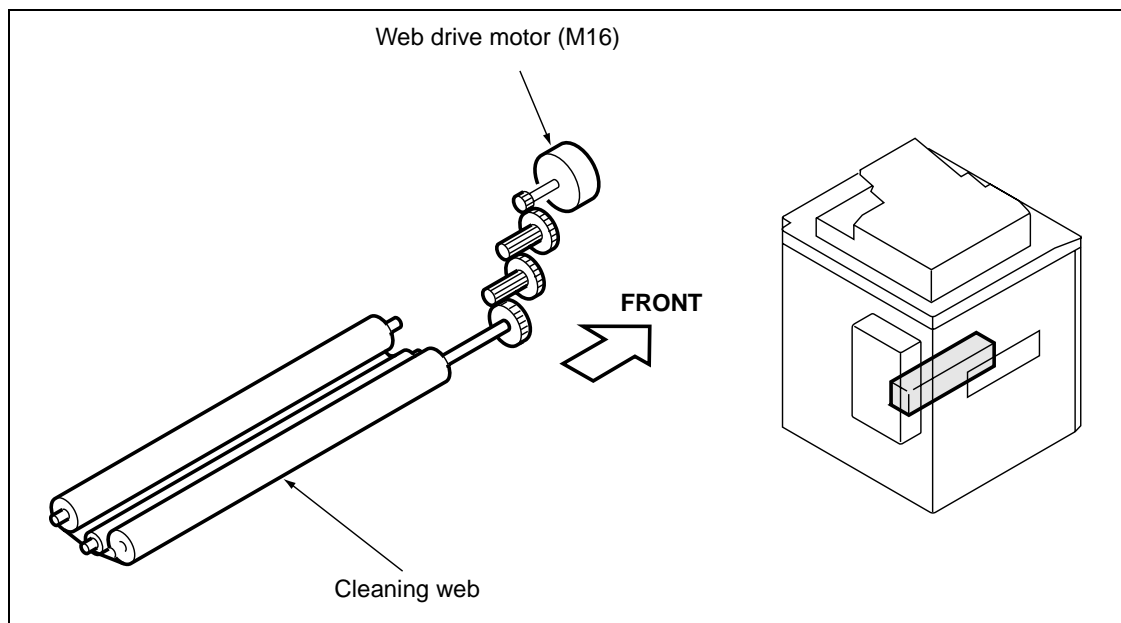
[11] Paper Exit Drive Section



[12] Toner Supply Drive Section



[13] Optics Drive Section

[14] Web Drive Section

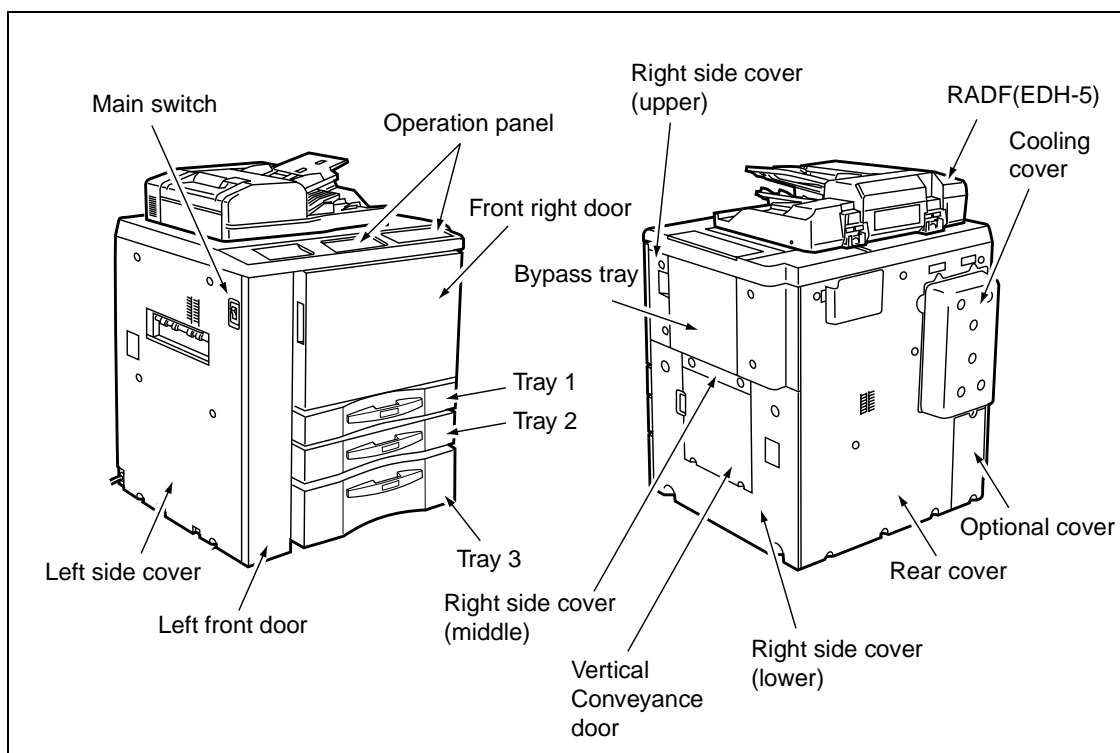


UNIT EXPLANATION

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EXTERNAL SECTION

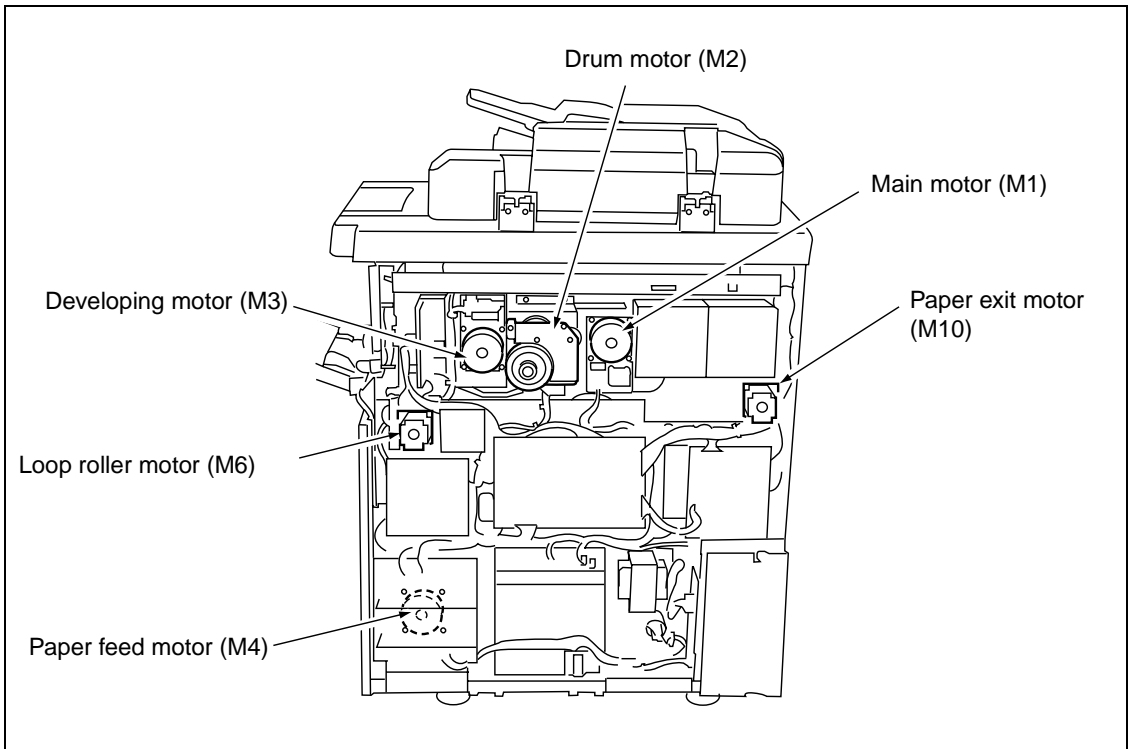
[1] Composition



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DRIVE SECTION

[1] Composition



[2] Mechanisms

	Mechanism	Driven Parts	Method
*1	Drum drive	Drum, clearer fur brush	Gear drive (dedicated motor)
*1	Developing drive	Developing sleeve	Gear drive (dedicated motor)
*1	Main drive	Fixing upper roller	Gear drive (dedicated motor)
*1	Paper feed drive	Tray 1/2/3, Vertical conveyance roller (middle/lower)	Gear drive (dedicated motor) + Belt
*1	By-pass/loop drive	By-pass feed roller, loop roller, vertical conveyance roller (upper)	Gear drive (dedicated motor)
*1	Paper exit drive	Paper exit roller	Gear drive (dedicated motor)

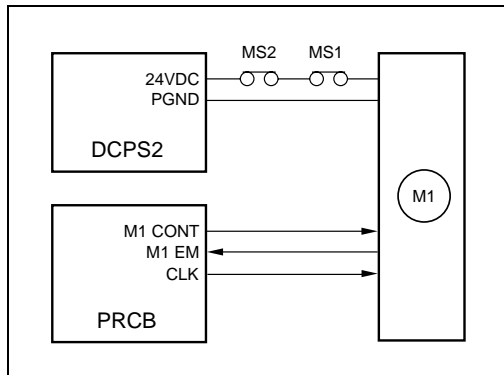
*1 Independent drive mechanisms

Drive mechanisms are driven by dedicated motors to ensure high-speed operation and to improve serviceability of the drum unit and developing performance.

In order to improve the fixativeness in copying thick paper, the selection of [Thick paper 3] in the key operation mode decreases the linear speed of the main motor (M1) to 210mm/s only when the paper passes through the fixing unit.

The mode of [Thick paper 3] is available only when the length of the paper in the paper feed direction is 216mm or shorter and the paper is fed from LT.

[3] M1 (Main) Control



M1 (main) is controlled by the PRCB (printer control board) and the motor drive power is supplied from DCPS2 (DC power supply unit 2).

1. Operation

M1 is a motor driven by 24V DC. It drives fixing upper and lower rollers, paper conveyance belts, and thick paper conveyance roller. M1 incorporates a speed controller circuit to send a signal indicating abnormal rotation to PRCB when the PLL lock has been released for longer than the specified period of time.

M1 starts rotating when the START PRINT button is pressed and stops when the last copied paper has been ejected. During the warm-up operation, M1 rotates to rotate the fixing rollers. When either one of the front doors of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) actuates to stop supplying the DC power to the motor, causing the M1 to stop.

2. Signals

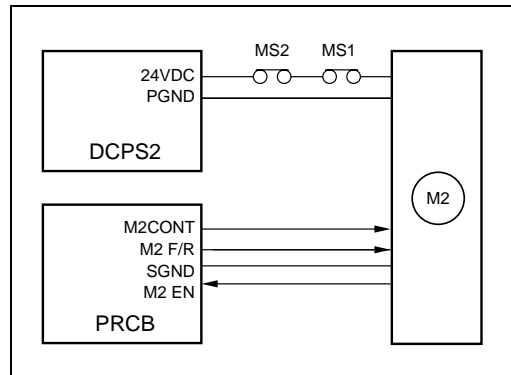
a. Input signal

- (1) M1 EM (M1 to PRCB)
M1 fault detection signal.
[H]: Abnormal rotation (PLL lock has been released for 2 to 3 seconds or longer.)
[L]: Normal rotation

b. Output signal

- (1) M1 CONT (PRCB to M1)
M1 drive control signal.
[H]: M1 ON
[L]: M1 OFF
- (2) CLK (PRCB to M1)
Clock signal for M1.

[4] M2 (Drum) Control



M2 (drum) is controlled by the PRCB (printer control board) and the motor drive power is supplied from DCPS2 (DC power supply unit 2).

1. Operation

M2 is a motor driven by 24V DC. It drives a drum, toner guide brush, toner guide shaft, toner conveyance screw, and separation claw swing sections. M2 incorporates a speed sensor (encoder) to send a feedback signal to PRCB. Using this signal, PRCB detects the rotational speed and calculates the PWM duty to be given to the motor, controlling the M2 speed. In addition to the speed sensor, M2 also has a flywheel mechanism to ensure accurate and steady rotation. M2 starts rotating when the START PRINT button is pressed and stops when the last copied paper has been ejected.

When either one of the front doors of this machine opens or closes, MS2 (interlock 1) or MS2 (interlock 2) actuates to stop supplying the DC power to the motor, causing the M2 to stop.

2. Signals

a. Input signal

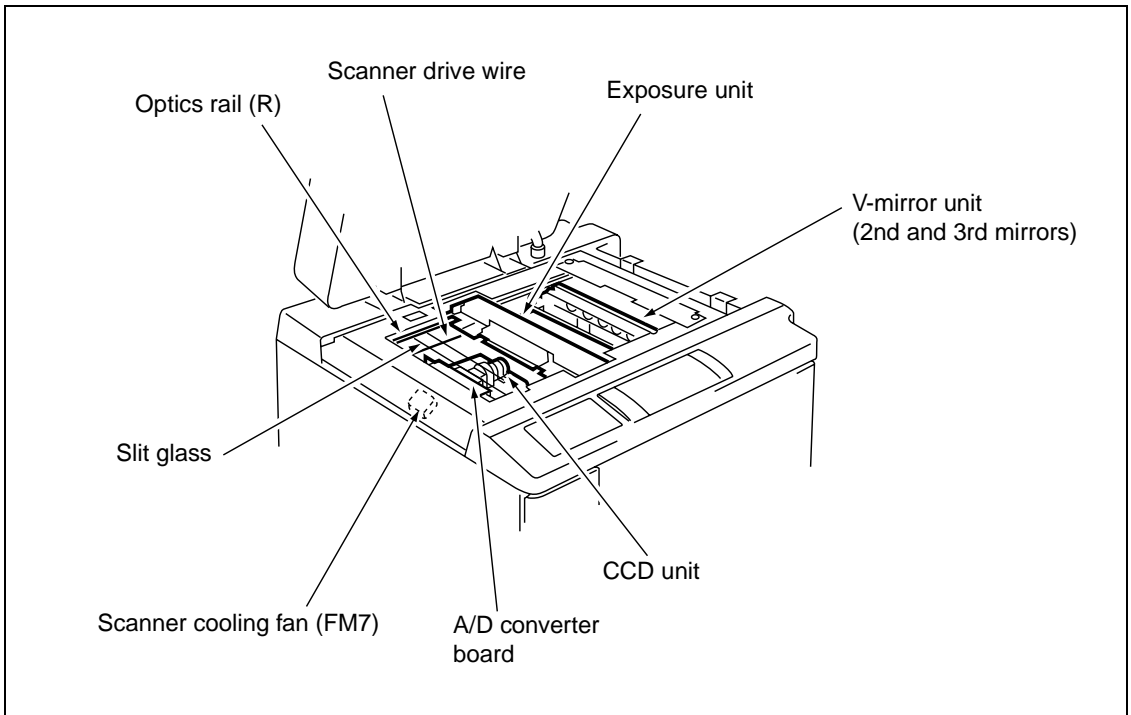
- (1) M2 EN (M2 to PRCB)
M2 motor encoder signal.

b. Output signals

- (1) M2 CONT (PRCB to M2)
M2 drive control signal (PCOM).
[L]: M2 ON
[H]: M2 OFF
- (2) M2 F/R (PRCB to M4)
M2 rotational direction switchover signal.
[H]: CCW (relative to motor shaft)
[L]: CW (relative to motor shaft)

READ SECTION

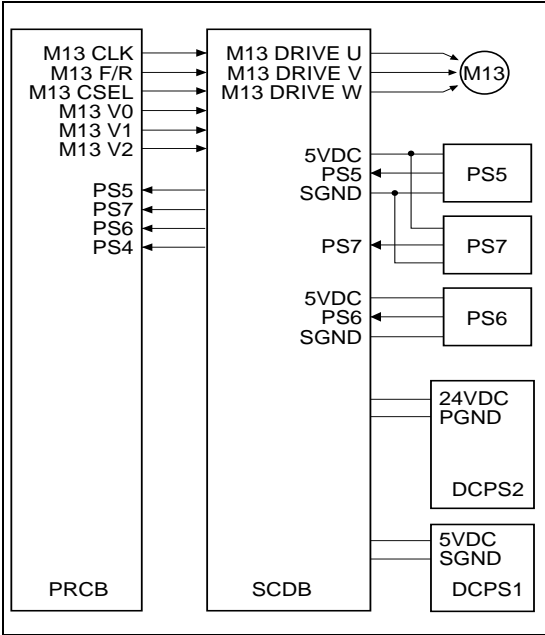
[1] Composition



[2] Mechanisms

Mechanism	Method
Light source	Xenon lamp
Exposure	Light source shift slit exposure, static exposure
Scanning	Platen original scanning: 1st, 2nd, and 3rd mirrors are shifted. RADF original scanning: Original is moved with light source held stationary.
Lamp power supply	Lamp cord
Optics cooling	Cooling fan

[3] M13 (Scanner Drive) Control



M13 (scanner drive) is driven by the SCDB (scanner drive board) and is controlled by the PRCB (printer control board).
Related signals are PS5 (scanner HP), PS6 (original HP), and PS7 (ADF brake).

1. Operation

a. Operation of M13

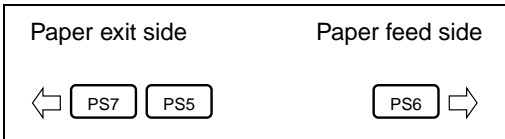
M13 is a 3-phase stepping motor driven using the 3-phase bipolar constant-current drive method. The motor is turned ON/OFF by supplying/stopping clock pulses.

b. Movement speed of the exposure unit

Scanning speed

Operation mode	Movement speed
Scan	400 mm/sec (600 dpi, 1:1)
Forward	615.38 mm/sec
Home position search	205.1 mm/sec

c. Positions of sensors



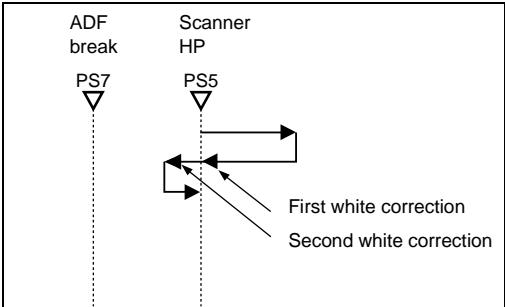
d. Exposure unit home position search

If the exposure unit is not at the home position when the main switch is turned ON or when the START PRINT button is pressed, the home position is searched for in the following manner:

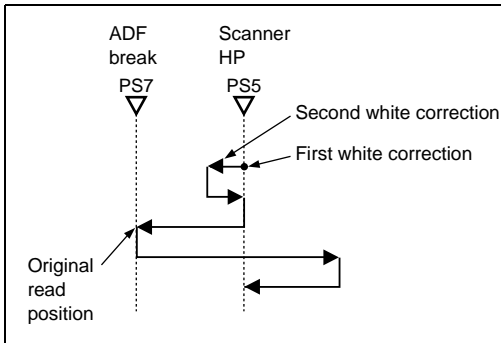
- (1) When the exposure unit is on the paper exit side with respect to the home position
When the exposure unit is at PS7 (ADF brake) (PS7 is ON), it moves forward at a low speed. And it moves until PS5 (scanner HP) turns ON and OFF again, then stops. It moves backward until PS5 turns ON again.
When the exposure unit is between PS7 and PS5, it moves backward until PS7 turns ON before moving forward as mentioned above.
- (2) When the exposure unit is on the paper feed side
When the exposure unit is at PS5 (PS5 is ON), it moves forward at a low speed until PS5 turns OFF before moving as discussed in (1) above.
When the exposure unit is located on the paper feed side with respect to PS5, it moves backward then stops for a short while after PS5 turns ON. Then it moves forward and performs operations as described in (1) above.

e. Read with shading correction

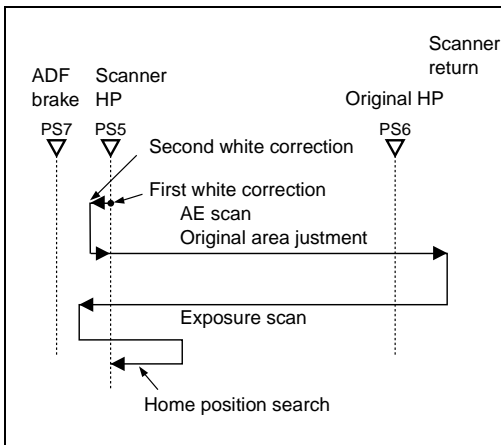
L1 is turned ON, when black correction has been completed after the home position search operation, thus reading the light reflected by the white reference plate installed underneath the glass stopper plate and performing the first white correction. Then, the exposure unit moves to the paper exit side, performs the second white correction while stopping at the preset position, then returns to the home position to turn OFF L1.



f. ADF copy operation



g. Platen copy operation



b. PRCB output signals

- (1) M13 CLK (PRCB to SCDB)
Clock signal for M13.
- (2) M13 F/R (PRCB to SCDB)
M13 rotational direction switchover signal.
[L]: The exposure unit is moved toward the paper exit side.
[H]: The exposure unit is moved toward the paper feed side.
- (3) M13 CSEL (PRCB to SCDB)
M13 excitation switchover signal.
[L]: 2-/3-phase excitation
[H]: W2-/3-phase excitation
- (4) M13 V0 to V2 (PRCB to SCDB)
M13 excitation current switchover signal.

c. SCDB output signals

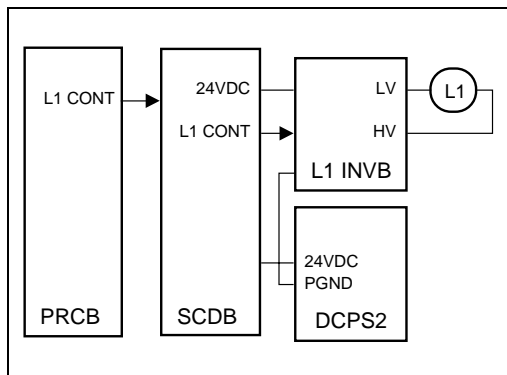
- (1) M13 DRIVE, U, V, W (SCDB to M13)
M13 drive control signals.
These signals are used to control rotation of M13. By supplying and stopping clock pulses, the motor is turned ON/OFF and the rotational direction is switched.

2. Signals

a. PRCB input signals

- (1) PS5 (PS5 to SCDB to PRCB)
Scanner home position detection signal.
The reference position for the home position of the exposure unit is detected.
[L]: The exposure unit is detected.
[H]: The exposure unit is not detected.
- (2) PS6 (PS6 to SCDB to PRCB)
Original home position detection signal.
In the platen mode, the reference position for the original's leading edge is detected.
[L]: The exposure unit is detected.
[H]: The exposure unit is not detected.
- (3) PS7 (PS7 to SCDB to PRCB)
ADF brake detection signal.
In the DF mode, the exposure reference position is detected.
[L]: The exposure unit is detected.
[H]: The exposure unit is not detected.

[4] Exposure control



L1 (exposure lamp) is driven by the L1 INVB (L1 inverter) and is controlled by the PRCB (printer control board) via the SCDB (scanner drive board).

1. Operation

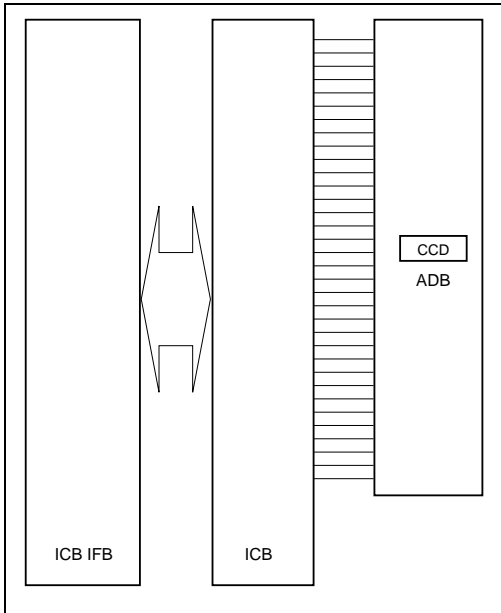
L1 is a xenon lamp driven by the inverter circuit. The xenon lamp can emit a constant quantity of light and generates less heat than other lamps, requiring neither light quantity controller circuit nor thermal protector circuit that have been used in the conventional machines. However, since L1 is held lit when the exposure unit is nonoperational in the DF mode, a FM7 (scanner cooling) is installed in the read section.

2. Signals

a. Output signals

- (1) L1 CONT (PRCB to SCDB to L1 INVB)
L1 ON/OFF control signal.
[L]: L1 ON
[H]: L1 OFF

[5] Original Read Control



Original read control is performed by the ADB (A/D converter board) and CCD sensor installed in the ADB.

1. Operation

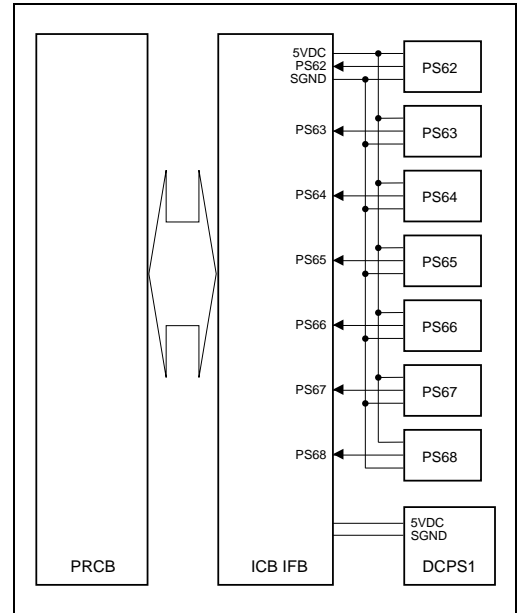
The light reflected by the exposed original is input to the CCD sensor through the lens. The analog voltage corresponding to the quantity of input light is A/D-converted in the ADB, being output to the ICB (image control board).

a. Original read

The original read timing is as follows:

- (1) Platen mode
Specified interval after exposure unit turns PS6 (original HP) ON.
- (2) DF mode
After lapse of the specified time after the original's leading edge turns ON PS308 (Original conveyance).

[6] APS Control



The APS method used in the platen mode is different from that used in the DF mode.

The signal read by the APS sensor or the original size detection sensor of the RADF is processed by the ICB (image control board).

1. Operation

a. APS detection

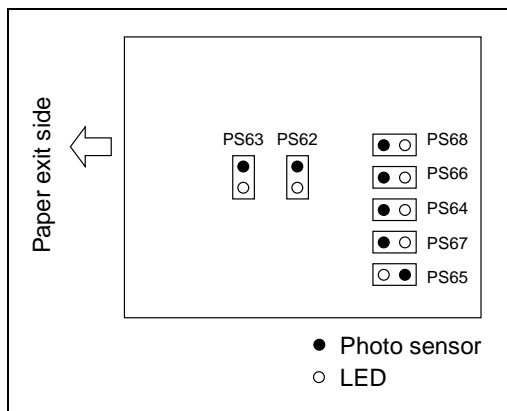
(1) DF mode

The original size is detected according to the combination of ON/OFF states of PS302 (original size detection 1) and PS303 (original size detection 2) and the resistance value of VR301 (original size detection).

(2) Platen mode

The paper size is detected according to the combination of ON/OFF states of PS62 (APS 1), PS63 (APS 2), PS64 (APS 3), PS65 (APS 4), PS66 (APS 5), PS67 (APS 6), and PS68 (APS 7).

The APS sensor consists of LEDs and photosensors. Lights emitted from the LEDs is reflected by the original and received by photosensors.



Relationships between sensors and original sizes are as follows:

Sensor Paper size	PS62	PS63	PS64	PS65	PS66	PS67	PS68
B5R	○	○	○	○	○	○	1
B5	○	○	1	○	1	○	1
B4	1	1	1	○	1	○	1
A4R	1	○	○	○	1	○	1
A4	○	○	1	1	1	1	1
A3	1	1	1	1	1	1	1
8.5 x 11R	○	○	○	○	1	○	1
8.5 x 11	○	○	1	○	1	1	1
8.5 x 14	1	1	○	○	1	○	1
11 x 17	1	1	1	○	1	1	1
Min. size	○	○	○	○	○	○	○

1 ON

○ OFF

b. APS detection timing

The APS detection timing differs between the platen mode and DF mode.

(1) DF mode

When the DF mode is selected or original is set on the RADF original feed tray, APS detection takes place using PS302 (original size detection 1), PS303 (original size detection 2), and VR301 (original size detection).

(2) Platen mode

When RADF is closed and PS315 (APS timing) turns ON, APS detection takes place using PS62 to PS68.

2. Signals

a. Input signals

(1) PS62 (PS62 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

(2) PS63 (PS63 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

(3) PS64 (PS64 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

(4) PS65 (PS65 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

(5) PS66 (PS66 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

(6) PS67 (PS67 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

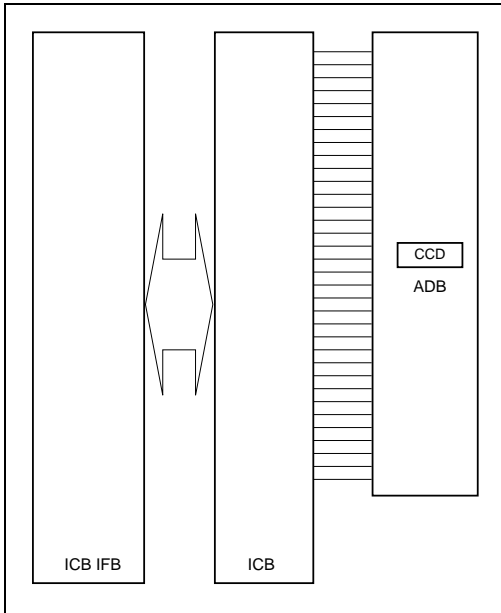
(7) PS68 (PS68 to ICB IFB)

Paper size detection signal.

[L]: Paper is detected.

[H]: Paper is not detected.

[7] AE Control



The CCD sensor detects the image density on an original during AE scanning to select the optimum copy gamma correction curve.
AE processing is controlled by the ICB (image control board).

1. Operation

a. AE detection

(1) Platen mode

The image density on an original is measured while the exposure unit moves from the home position to the leading edge of the original after depression of the START button.

<AE sampling area>

(1) Normal copy

10mm inside perimeter of original size detected by APS.

(2) Non-image area erasure mode

Entire original area detected by forward scanning.

(3) DF mode

The image at the leading edge of the original is read when the START button is pressed.
The read data is used to measure the image density on the original.

<AE sampling area>

(1) Main scanning direction

- 10-mm area inside the original detected by APS

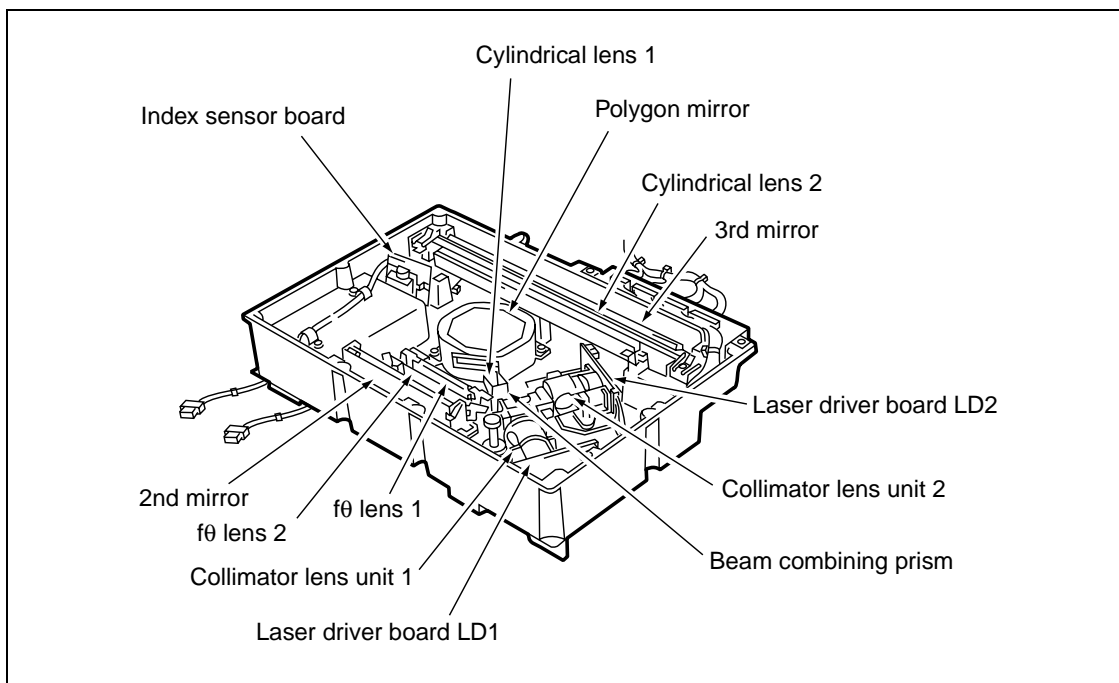
(2) Sub scanning direction

Range between 2mm to 7.3mm from the leading edge of the original.

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WRITE UNIT

[1] Composition

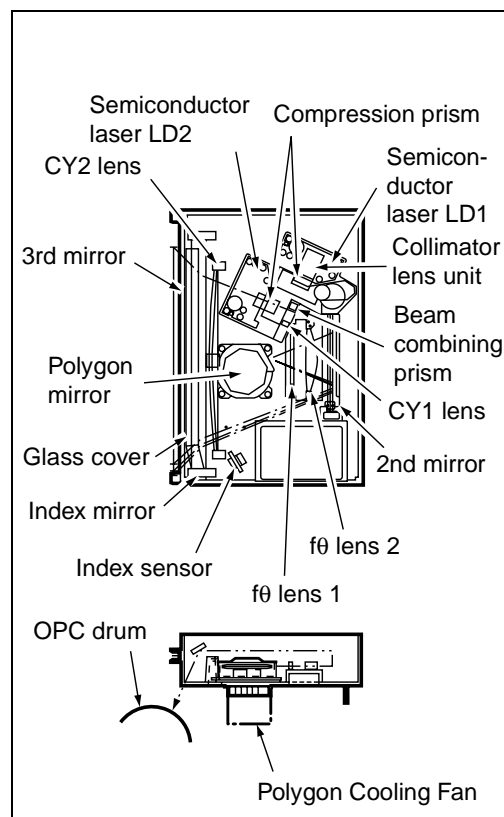


[2] Mechanisms

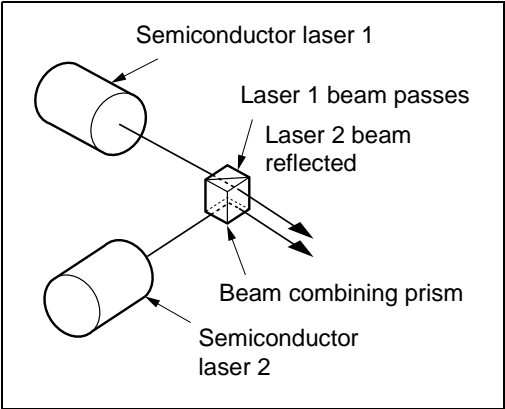
	Mechanism	Method
*1	Scan	Polygon mirror Rotational speed: 24,803.1 rpm (400 dpi) 37,204.7 rpm (600 dpi)
	Light source	Laser diodes (two) (Output: Max. 20 mW)
*2	Positioning	Index sensor Fine adjustment prism
*3	Laser beam combining	Beam combining prism

*1 Path of laser light

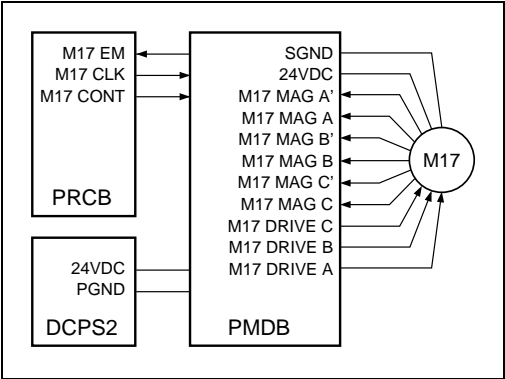
The light output from semiconductor laser is radiated onto the OPC drum via the collimator lens, compression prism, fine adjustment prism, beam combining prism, cylindrical lens 1, polygon mirror, f θ lens 1, f θ lens 2, second mirror, cylindrical lens 2, and third mirror.



- *2 Positioning
Each laser beam is positioned by the compression prism and fine adjustment prism.
- *3 Laser beam combining
Two laser beams output at right angle to each other are redirected in the same direction using the beam combining prism.



[3] M17 (Polygon) Control



M17 (polygon) is driven by the PMDB (polygon driver board) and is controlled by the PRCB (printer control board).

1. Operation

a. Explanation of operation

M17 is a 3-phase brushless DC motor which is driven by the 3-phase bipolar method. The current flowing through the coil is switched according to the position of the rotor detected by the position sensor (magnetic sensor) in the motor. This motor rotates the polygon mirror to scan the laser beams from LDB1 and 2 (laser driver boards 1 and 2) in the axial direction of the drum. Its rotation is held constant by PLL control.

b. Rotational speed

36VDC is used to drive M17. The rotation speeds are as follows:

Resolution	Rotational speed (rpm)
400 dpi	24,803.1 rpm
600 dpi	37,204.7 rpm

2. Signals

a. PRCB input signals

- (1) M17 EM (PMDB to PRCB)
This signal indicates the clock synchronization state of M17.
[L]: Synchronous (normal)
[H]: Asynchronous (abnormal)

b. PRCB output signals

- (1) M17 CONT (PRCB to PMDB)

This signal turns ON/OFF M17.

[L]: M17 ON

[H]: M17 OFF

- (2) M17 CLK (PRCB to PMDB)

This is a reference clock signal for PLL-controlling M17 in PMDB.

c. PMDB input signals

- (1) M17 MAG A/A' (M17 to PMDB)

- (2) M17 MAG B/B' (M17 to PMDB)

- (3) M17 MAG C/C' (M17 to PMDB)

Output signals from the position sensor (magnetic sensor) incorporated in M17.

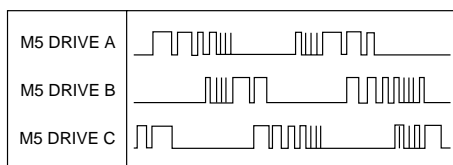
The PMDB detects the position of the motor rotor using these signals, switching among outputs, M17 DRIVE A to C.

d. PMDB output signals

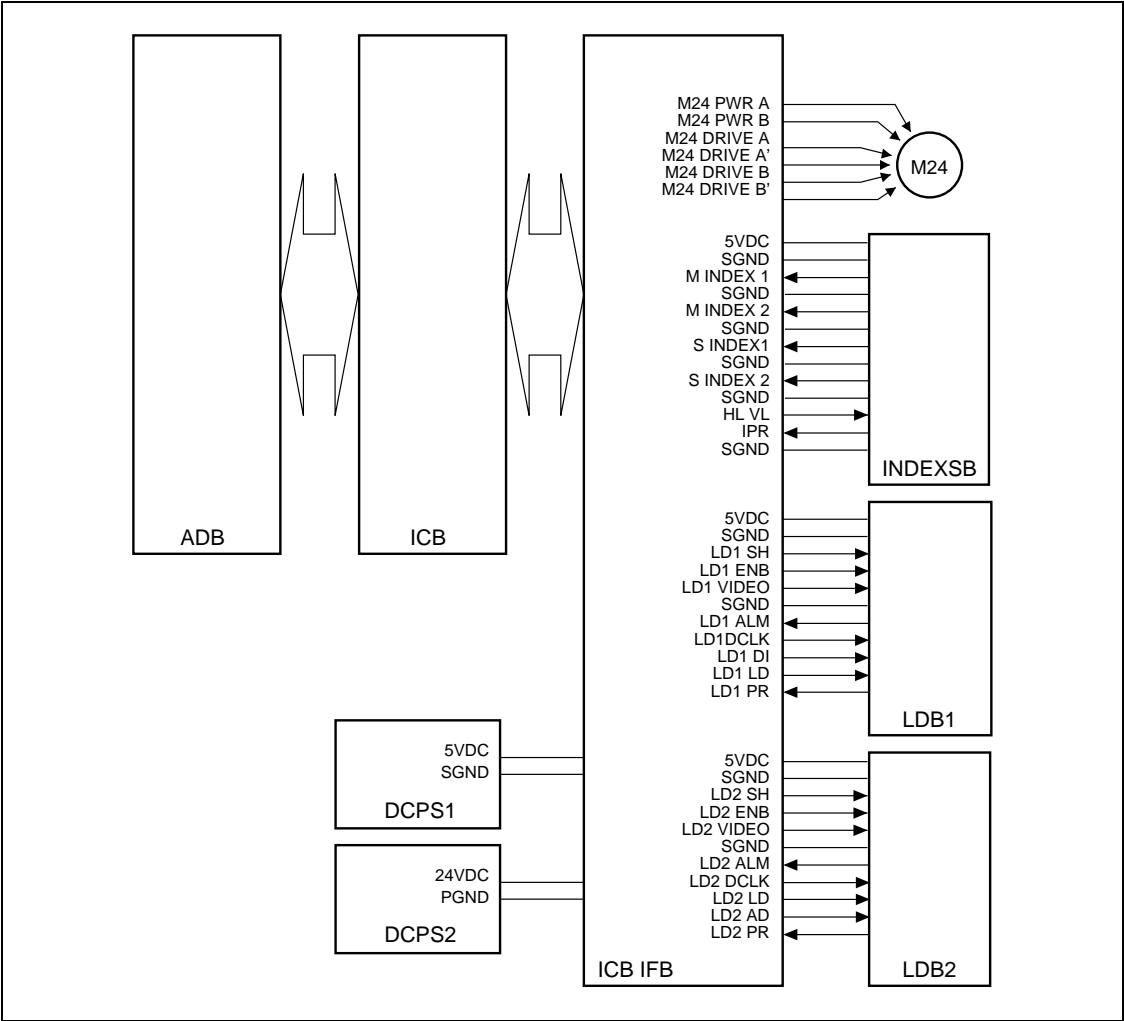
- (1) DRIVE A to C (PMDB to M17)

M17 drive signals.

M5 DRIVE A to C supplies the corresponding voltages to M17. Pulses of the voltages applied to M17 are shown below. The pulse widths of the PMDB output signals change as shown below depending on the state of M17 rotation, changing the effective values of the voltages supplied to M17. Thus, the M17 speed can be controlled.



[4] Image Write Control



The analog image data from the CCD sensor is A/D-converted by the ADB (A/D converter board), then sent to the ICB (image control board) for data processing. The processed image data is converted into a laser beam according to the control signal received from the ICB through the ICB IFB (ICB I/F board), then the beam is radiated onto the drum surface. Two lasers are pro-

vided to write two lines of image data per scan. The write start position is detected by the INDXSb (index sensor board). The ICB has an E-RDH (electronic RDH processing) function to store digitized data. Various editing functions can be performed based on this data.

1. Operation

a. Image processing

The following processing is performed by the ICB (image control board):

- (1) AOC (Auto Offset Control)
During shading correction, a read operation takes place while L1 (exposure lamp) is OFF, and the analog offset voltage of the output from the CCD sensor is automatically adjusted so that the resulting level is the lower limit of the A/D converter.
- (2) AGC (Auto Gain Control)
During shading correction, the white reference plate is read, and the amplification of the analog output from the CCD sensor is automatically adjusted so that the resulting level is the upper of the A/D converter.
- (3) Shading correction
<Timing>
 - When SW1 (main switch) is turned ON
- (4) Brightness/density conversion
- (5) EE processing
- (6) Text/dot pattern judgment
- (7) Filtering/magnification change processing
- (8) Magnification change processing
- (9) Copy gamma correction
- (10) Skew correction
- (11) Error diffusion processing
- (12) Data compression
- (13) Write density control

b. Write

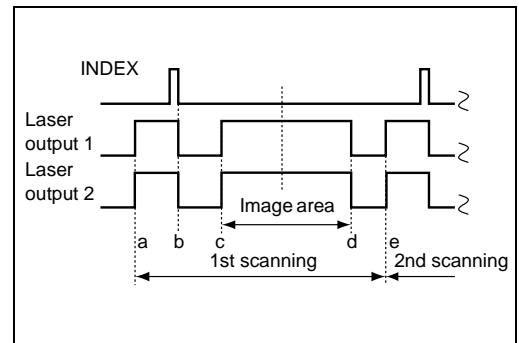
The ICB (image control board) sends image data on a pixel basis to LDB1 and LDB2 according to the control signals from the PRCB (printer control board).

LDB1 and LDB2 cause the lasers to emit for a period corresponding to the image data. This laser light is radiated onto the drum surface.

- (1) MPC (Maximum Power Control)
ICB informs LDB1 and LDB2 of the maximum output value and sets that value for the laser beam emission. LDB1 and LDB2 store this setting value and maintain the quantity of the laser beam emission using the APC (Auto Power Control).
<MPC timing>
 - When SW1 (main switch) is turned ON
- (2) APC (Auto Power Control)
The ICB outputs an APC start instruction to the LDB at the following timing, after MPC is set.

<APC timing>

- The LDB1 and LDB2 automatically monitor the laser drive current one line at a time, and controls it so that the light intensity remains the MPC value.
- (3) Write timing
 - a) Main scanning direction
Using INDEX signal from INDXSB, determines the laser write reference position for each scan in the drum rotation direction, and writes the image to copy paper using the paper position information derived from the paper position detection by PS1 (paper mis-centering).



Symbol	Description
a	Laser goes ON for first scan.
b	Index sensor goes ON.
b-c c-d d-e	The timing at the left is controlled by counting the LD1 IRCLK and LD2 IRCLK signals. It differs depending on the document size.

- b) Sub scanning direction
Specified interval after PS44 (registration) detects the tip of the copy paper.
- (4) Laser beam position correction
 - a) Main scanning direction
The index sensor detects the deviation of the positions of the two beams. This error is corrected by changing the timing of the light emission from the laser.
 - b) Sub scanning direction
The index sensor detects the deviation of the positions of two beams in order to change the angle of the fine adjustment prism of the LD1 laser using M24 (laser correction), thus adjusting the vertical angle of the beam.

2. Signals

a. ICB IFB input signals

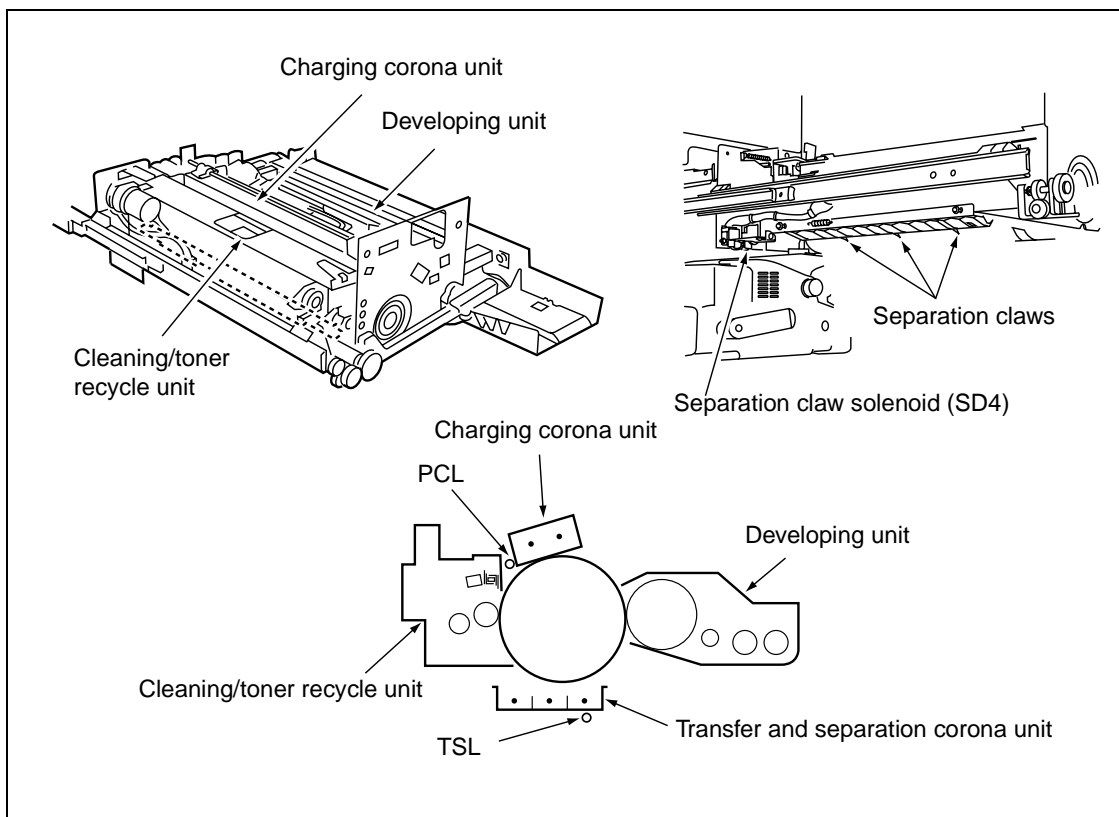
- (1) M INDEX 1, 2 (INDEXSB to ICB IFB)
This is an index signal used to detect deviation of vertical scanning.
- (2) S INDEX 1, 2 (INDEXSB to ICB IFB)
This is an index signal used to detect deviation of horizontal scanning.
- (3) IPR (INDEXSB to ICB IFB)
This signal monitors the INDEXSB power supply.
[H]: Normal
[L]: Abnormal
- (4) LD1 ALM (LDB1 to ICB IFB)
This signal indicates the state of the LD1 laser drive current.
[H]: Normal
[L]: Abnormal
- (5) LD1 PR (LDB1 to ICB IFB)
LD1 power supply monitor signal.
[H]: Normal
[L]: Abnormal
- (6) LD2 ALM (LDB2 to ICB IFB)
This signal indicates the state of the LD2 laser drive current.
[H]: Normal
[L]: Abnormal
- (7) LD2 PR (LDB2 → ICB IFB)
LD2 power supply monitor signal.
[H]: Normal
[L]: Abnormal

b. ICB IFB output signals

- (1) M24 PWR A (ICB IFB to M24)
M24 A-phase drive signal.
- (2) M24 PWR B (ICB IFB to M24)
M24 B-phase drive signal.
- (3) M24 DRIVE A/A' (ICB IFB to M24)
M24 A-phase drive pulse signal.
- (4) M24 DRIVE B/B' (ICB IFB to M24)
M24 B-phase drive pulse signal.
- (5) LD1 SH (ICB IFB to LDB1)
One scan line equivalent APC sampling signal.
- (6) LD1 ENB (ICB IFB to LDB1)
Laser APC function ON/OFF control signal.
Laser beam emission stops when it is OFF.
- (7) LD2 SH (ICB IFB to LDB2)
One scan line equivalent APC sampling signal.
- (8) LD2 ENB (ICB IFB to LDB2)
Laser APC function ON/OFF control signal.
Laser beam emission stops when it is OFF.
- (9) LD1 VIDEO (ICB IFB to LDB1)
LD1 laser image signal.
- (10) LD2 VIDEO (ICB IFB to LDB2)
LD2 laser image signal.
- (11) LD1 DCLK (ICB IFB to LDB1)
LD1 clock signal for MPC value data transmission.
- (12) LD1 DI (ICB IFB to LDB1)
LD1 data signal for MPC.
- (13) LD1 AD (ICB IFB to LDB1)
LD1 MPC value storage command signal.
- (14) LD2 DCLK (ICB IFB to LDB2)
LD2 clock signal for MPC value data transmission.
- (15) LD2 DI (ICB IFB to LDB2)
LD2 data signal for MPC.
- (16) LD2 AD (ICB IFB to LDB2)
LD2 MPC value storage command signal.

DRUM UNIT

[1] Composition



[2] Mechanisms

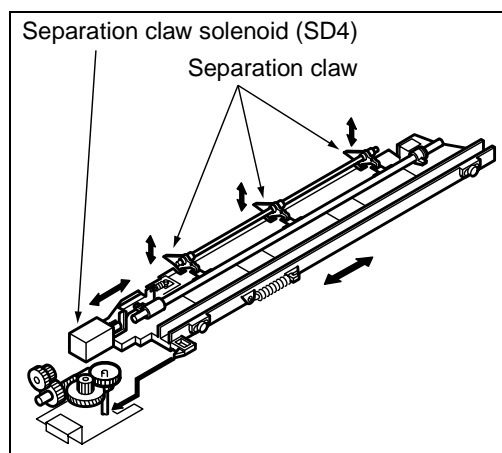
Mechanism	Method
Carriage support	Fixed rail
PCL/TSL	LED
*1 Auxiliary separation	Separation claws
*2 Conveyance assistance	Ratchet wheel

The drum unit is an integral assembly consisting of a drum, charging corona unit, developing unit, cleaning/toner recycle unit, PCL, and separation claws.

*1 Auxiliary separation

- To prevent paper jamming, three separation claws are used to separate paper from the drum forcibly. These separation claws are pressed against the drum or detached from it by turning ON/OFF the separation claw solenoid (SD4).
- To prevent a specific part of image copied paper from being stained and to prevent the drum from being scratched, the swing mecha-

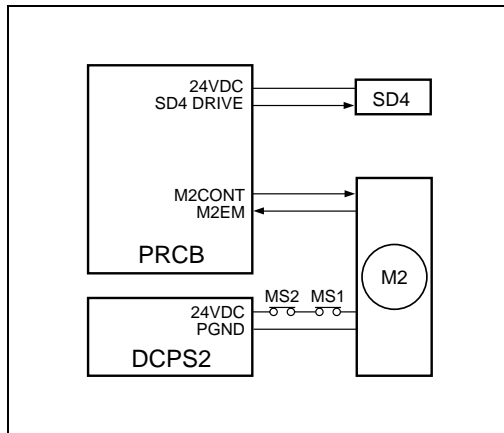
nism slides the separation claws about 5 mm back and forth in parallel with the drum surface.



*2 Conveyance assistance

The thick paper conveyance ability has been improved by the use of ratchets.

[3] Separation Claw Control



The separation claw is driven by SD4 (separation claw). The vibration of the separation claw is put in by M2 (drum). SD4 is controlled directly by PRCB (printer control board).

1. Operation

a. Separation claw ON/OFF control

SD4 is a pull-type solenoid powered by 24 VDC. It turns ON to press separation claws against the drum to help image copied paper separate.

(1) SD4 operation timing

SD4 turns ON after a lapse of specified time from turning ON of PS45 (leading edge detection) in the second paper feed section. It turns OFF after a lapse of the time set by the PRCB timer.

b. Separation claw swing control

Separation claws are swung by M2 (drum) via the cam mechanism.

2. Signals

a. Output signal

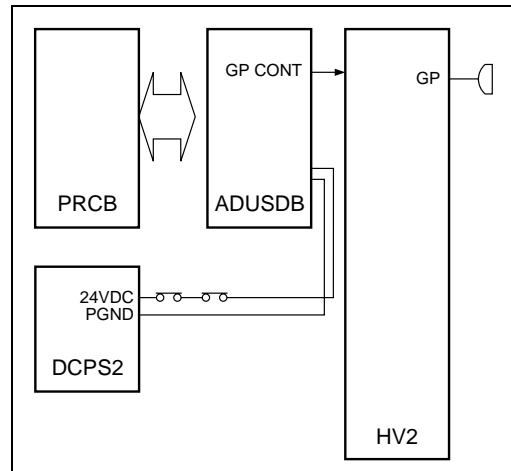
(1) SD4 DRIVE (PRCB to SD4)

SD4 drive control signal.

[L]: SD4 ON

[H]: SD4 OFF

[4] Paper Guide Plate Control



To prevent toner from adhering to the paper guide plate, a constant voltage is applied to the paper guide plate. This voltage is supplied from HV2 (high voltage unit 2) and is controlled by the serial data sent from the PRCB (printer control board) via the ADUSDB (ADU stand drive board). When the front door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to HV2, stopping the voltage application to the paper guide plate.

1. Operation

a. ON/OFF timing

Turning ON/OFF in sync with M2 (drum)

b. Applied voltage

-500 VDC

2. Signal

a. Output signal

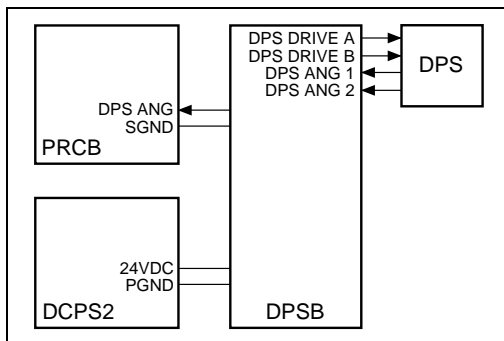
(1) GP CONT (ADUSDB to HV2)

This signal controls turning ON/OFF the voltage application to paper guide plate.

[L]: Voltage applied

[H]: Voltage not applied

[5] Drum Potential Control



The drum potential is detected by the DPS (drum potential sensor) and send the PRCB (printer control board) via the DPSB (drum potential sensor board).

1. Operation

Drum potential control is performed to keep the drum surface potential constant and maintain image quality regardless of the usage environment or the number of copies.

(1) Method

The image is created on the drum surface by the difference in the exposure potential and developing bias. A patch is created with laser PWM maximum.

The developing bias is corrected so that the difference between the after exposure potential (solid black area) and the developing bias is always kept constant and the charging current and the grid voltage are corrected so that the difference between the before exposure potential and developing bias is always kept constant.

(2) Timing

- When the fixing temperature is lower than 50°C at power ON.
- At the end of job after every 5,000 copies.

2. Signals

a. PRCB Input signals

- DPS ANG (DPSB to PRCB)
Analog signal corresponding to the drum charging potential.

b. DPSB Input signals

- DPS ANG 1 and 2 (DPS to DPSB)
Analog signal corresponding to the drum charging potential.

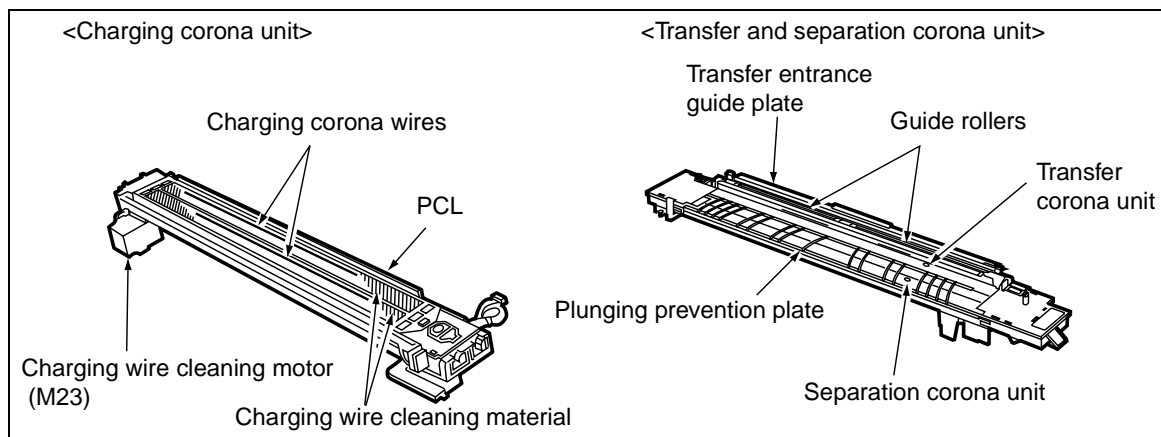
c. DPSB output signals

- DPS DRIVE A and B (DPSB to DPS)
DPS (drum potential) drive signal.

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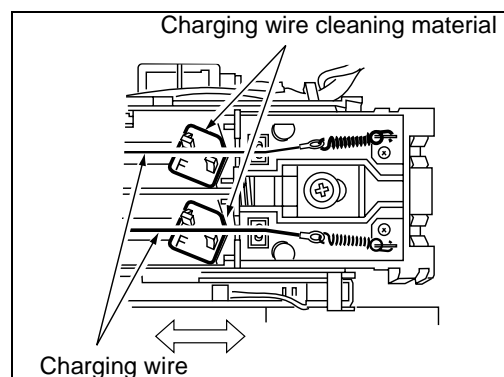
CORONA UNIT SECTION

[1] Composition



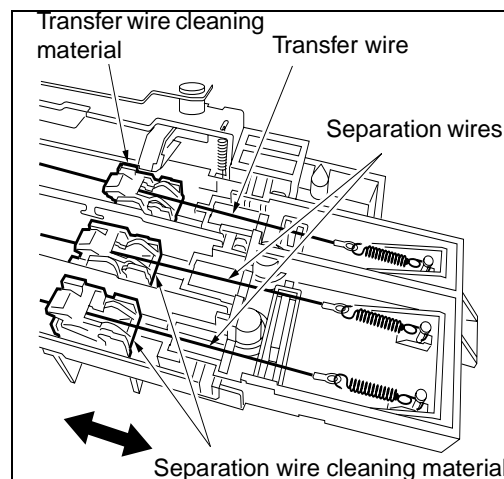
[2] Mechanisms

	Mechanism	Method
*1	Charging	Scorotron (DC negative corona discharge). Discharge wire: Tungsten, 0.06 mm dia. (gold-plated skin path: with automatic wire cleaner). Grid control: Gold-plated stainless plate.
*2	Transfer	DC positive corona discharge. Discharge wire: Oxide film tungsten, 0.06 mm dia., with automatic wire cleaner.
	Separation	AC/DC corona discharge. Discharge wire: Oxide film tungsten, 0.06 mm dia., with automatic wire cleaner.

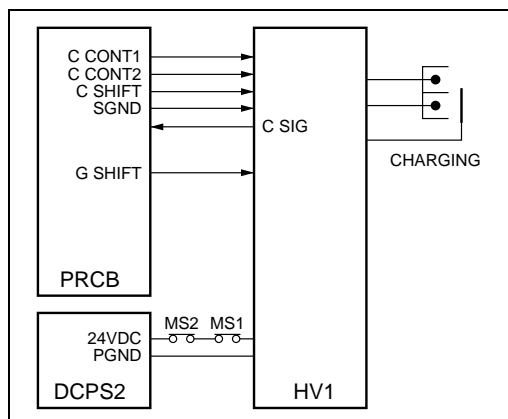


- *2 Cleaning the transfer and separation wires
The transfer and separation corona unit has a wire cleaner pads. The transfer and separation wire cleaning pads drive motor moves the transfer and separation wire cleaning pads back and forth, removing toner and dirt from the wires.

- *1 Cleaning the charging wire
The charging corona unit has wire cleaning pads. The charging wire cleaning pad drive motor moves the charging wire cleaning pad back and forth, removing toner and dirt from the wires.



[3] Charging Control



Charging control is conducted by serial data transmitted from PRCB (printer control board) to HV1 (high voltage unit 1). The applied voltage for the charging wires are supplied by HV1.

1. Operation

a. Charging

A Scorotron charging method is used. 24 VDC supplied from DCPS2 is raised to a negative DC voltage which is then discharged after being applied to the charging wire.

When the front door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to HV1, stopping the voltage supply to the charging corona unit and charging grid.

b. Grid voltage

The grid voltage is output from HV1 to the charging plate.

2. Signals

a. Input signal

- (1) C SIG (HV1 to PRCB)
Leak or short detection signal.
[L]: Normal
[H]: Abnormal

b. Output signals

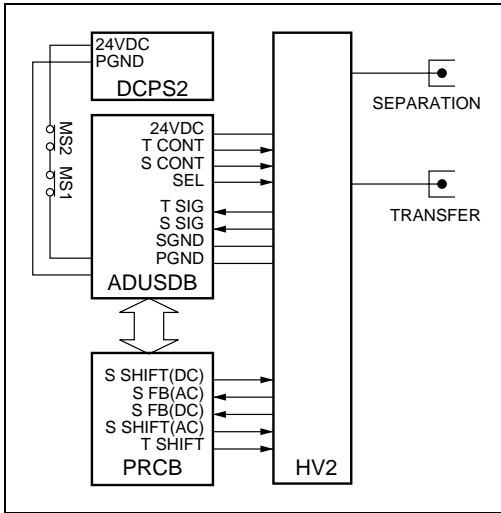
- (1) C CONT1, 2 (PRCB to HV1)
Charging 1/2 output ON/OFF control signal.
[L]: Charging voltage ON
[H]: Charging voltage OFF
- (2) C SHIFT (PRCB to HV1)
Charging corona unit output level control signal. The output to the charging corona unit is controlled according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

C SHIFT duty	20% to 80%
Charging output range	-500μA to -1900μA

- (3) G SHIFT (PRCB to HV1)
Charging grid output level control signal. The output to the charging grid is controlled according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

G SHIFT duty	20% to 80%
Grid voltage output range	-400 V to -1000 V

[4] Transfer/Separation Control



The transfer and separation corona unit is controlled by the PRCB (printer control board) and ADUSDB (ADU stand drive board) via the HV2 (high voltage unit 2). Between the PRCB and ADUSDB, signals are exchanged using serial data. When the front door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to HV2, stopping the voltage supply to the transfer and separation corona unit.

1. Operation

a. Transfer

Positive DC high voltage is used for toner transfer to the drum surface.

b. Separation

AC high voltage is used for toner separation from the drum surface.

2. Signals

a. PRCB input signals

(1) S FB (AC) (HV2 to PRCB)

Toner separation (AC) current feedback signal. This signal monitors the toner separation (AC) current. It is a 0 to 5V analog signal corresponding to the output level.

(2) S FB (DC) (HV2 to PRCB)

Transfer and separation (DC) current feedback signal.

This signal monitors the toner transfer and separation (DC) current. It is a 0 to 5V analog signal corresponding to the output level.

b. PRCB output signals

(1) T SHIFT (PRCB to HV2)

Transfer corona unit output level control signal. This signal controls the level of the output to the transfer corona unit according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

T SHIFT duty	20% to 80%
Transfer DC output range	70μA to -700μA

(2) S SHIFT (DC) (PRCB to HV2)

Separation corona unit output level control signal.

This signal controls the level of the output (DC bias component) to the separation corona unit according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

S SHIFT duty	20% to 80%
Separation DC output range	0μA to -300μA

(3) S SHIFT (AC) (PRCB to HV2)

Separation corona unit output level control signal.

This signal controls the level of the output (AC component) to the separation corona unit according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

S SHIFT duty	20% to 80%
Separation AC output range	500μA to 1400μA

c. ADUSDB input signals

(1) T SIG (HV2 to ADUSDB)

Leak or short toner transfer abnormality detection signal.

[L]: Normal

[H]: Abnormal

(2) S SIG (HV2 to ADUSDB)

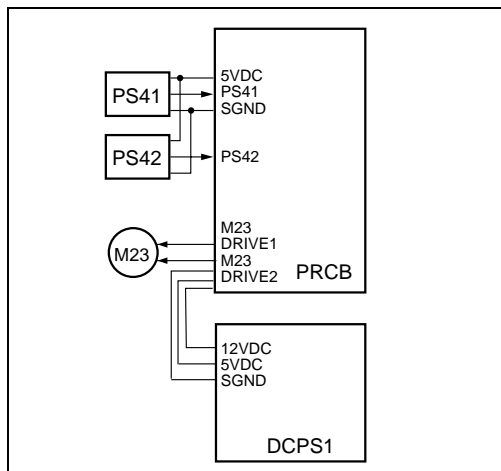
Leak or short toner separation abnormality detection signal.

[L]: Normal

[H]: Abnormal

d. ADUSDB output signals

- (1) T CONT (ADUSDB to HV2)
Transfer corona unit output ON/OFF control signal.
[L]: Transfer corona unit ON
[H]: Transfer corona unit OFF
- (2) S CONT (ADUSDB to HV2)
Separation corona unit output ON/OFF control signal.
[L]: Separation corona unit ON
[H]: Separation corona unit OFF
- (3) SEL (ADUSDB to HV2)
Feedback switchover signal.
This signal determines whether the feedback signal of the transfer and separation (DC) current is used for toner separation monitor or toner transfer monitor.
[L]: Toner separation monitor
[H]: Toner transfer monitor

[5] M23 (Charger Cleaning) Control

M23 (charger cleaning) uses a DC motor with a 12V drive, and is controlled directly by PRCB (printer control board). Related signals are PS41 (charger cleaning HP) and PS42 (charger cleaning limit).

1. Operation**a. Purpose of driving**

M23 is used to drive the charging wire cleaning pad.

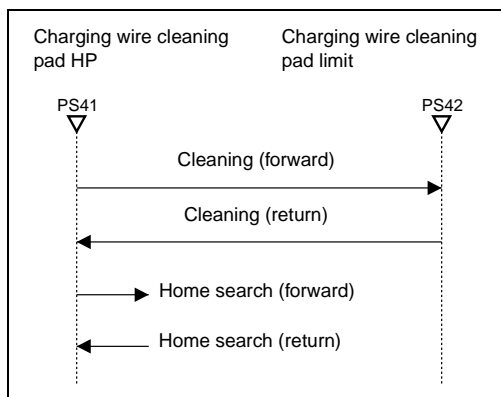
b. Operation timing

The charging corona wires are cleaned when the main switch is turned ON, when the fixing temperature is lower than 50°C (122°F). They are also cleaned when the specified copy count is reached.

* Changeable with 25 mode DIPSW.

c. Cleaning operation

The home position of the charging wire cleaning pad is on the rear side of machine. The charging wire cleaning pad operates as follows:



2. Signals

a. Input signals

(1) PS41 (PS41 to PRCB)

Charging wire cleaning pad home position detection signal.

This signal detects the reference position of the charging wire cleaning pad home position.

[L]: HP detected

[H]: HP not detected

(2) PS42 (PS42 to PRCB)

Charging wire cleaning pad limit detection signal.

This signal detects the limit position of charging wire cleaning pad.

[L]: Limit position detected

[H]: Limit position not detected

b. Output signals

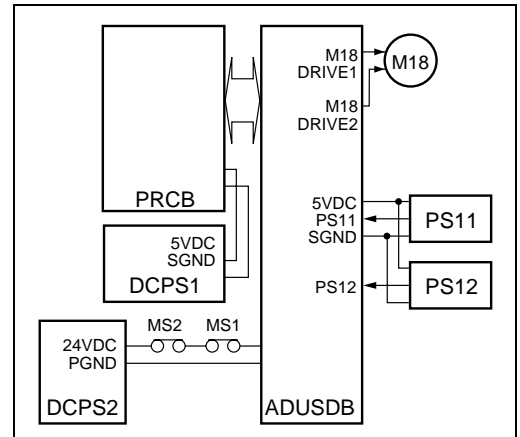
(1) M23 DRIVE1, 2 (PRCB to M23)

M23 drive control signal.

The drive direction of M23 is controlled by switching the drive current directions of two signals.

Status	M23 DRIVE1	M23 DRIVE2
Forward stroke of cleaning	H	L
Return stroke of cleaning	L	H
Stop	L	L

[6] M18 (Transfer/Separation Cleaning) Control



M18 (transfer/separation cleaning) is a 24 VDC motor which is controlled by the PRCB (printer control board) via the ADUSDB (ADU stand drive board). Between the PRCB and ADUSDB, signals are exchanged using serial data. Related signals are PS11 (transfer/separation wire cleaning pad HP) and PS12 (transfer/separation wire cleaning pad limit). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to DCDB, stopping the M18.

1. Operation

a. Purpose of driving

M8 is used to drive the transfer and separation wire cleaning pads.

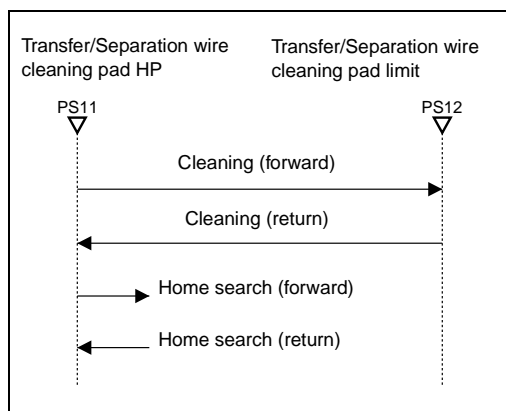
b. Operation timing

The transfer and separation wires are cleaned when the main switch is turned ON, when the fixing temperature is lower than 50°C, or when the specified copy count is reached.

* Changeable with 25 mode DIPSW.

c. Cleaning operation

The home position of the transfer and separation wire cleaning pads is on the front side of machine. The transfer and separation wire cleaning pads operate as follows:



2. Signals

a. PRCB input signals

(1) PS11 (PS11 to PRCB)

Transfer and separation wire cleaning pads home position detection signal.

This signal detects the reference position of the transfer and separation wire cleaning pads home position (front side).

[L]: HP detected

[H]: HP not detected

(2) PS12 (PS12 to PRCB)

Transfer and separation wire cleaning pads drive limit detection signal.

This signal detects the rear limit position of the transfer and separation wire cleaning pads.

[L]: Limit position detected

[H]: Limit position not detected

b. ADUSDB output signals

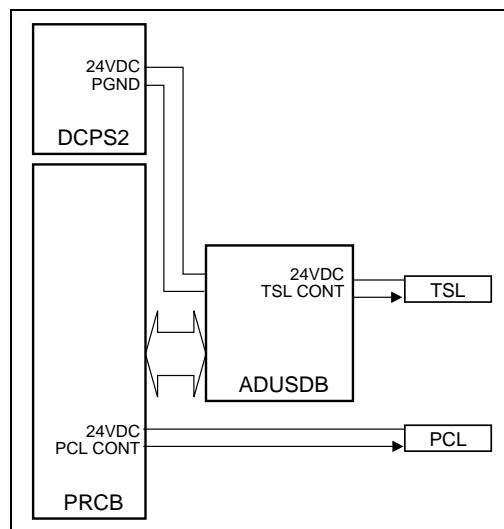
(1) M18 DRIVE1, 2 (ADUSDB to M18)

M18 drive control signal.

The drive direction of M18 is controlled by switching the drive current directions of two signals.

Status	M18 DRIVE1	M18 DRIVE2
Forward stroke of cleaning	H	L
Return stroke of cleaning	L	H
Stop	L	L

[7] PCL/TSL Control



LEDs are used for PCL (pre-charging exposure lamp) and TSL (transfer synchronization lamp). PCL is driven by PRCB (printer control board). TSL is driven by ADUSDB (ADU stand drive board), and the control is conducted by PRCB.

1. Operation

PCL is turned ON/OFF in sync with M2 (drum). TSL turns ON after a lapse of specified time from turning ON of PS45 (leading edge detection) of the second paper feed section. It turns OFF after a lapse of specified time from detection of the trailing edge of copy paper.

2. Signals

a. Output signals

(1) PCL CONT (PRCB to PCL)

PCL ON/OFF control signal.

[L]: PCL ON

[H]: PCL OFF

(2) TSL CONT (ADUSDB to TSL)

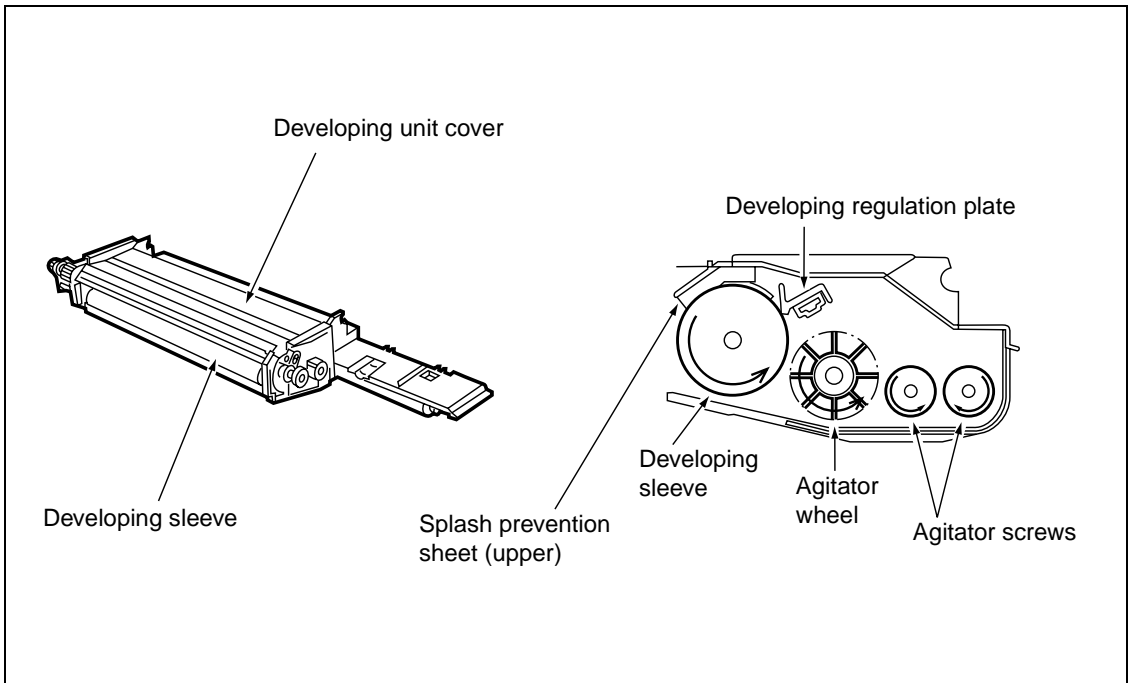
TSL ON/OFF control signal.

[L]: TSL ON

[H]: TSL OFF

DEVELOPING UNIT

[1] Composition



[2] Mechanisms

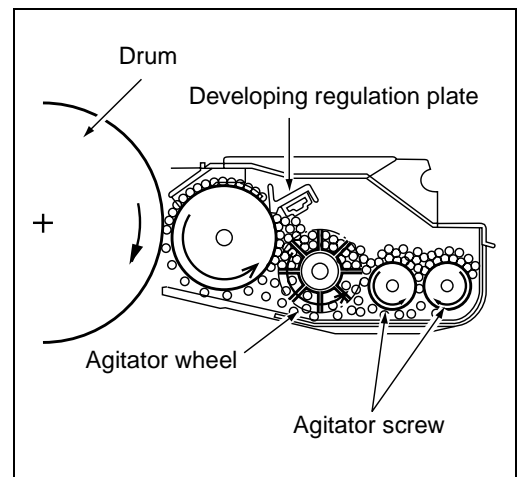
Mechanism	Method
Developing	2-component developer
Developing bias	DC bias
Developer agitation	Main agitator Auxiliary agitator

1. The developing unit drive motor (M3) drives the following parts via the gear unit at the back:

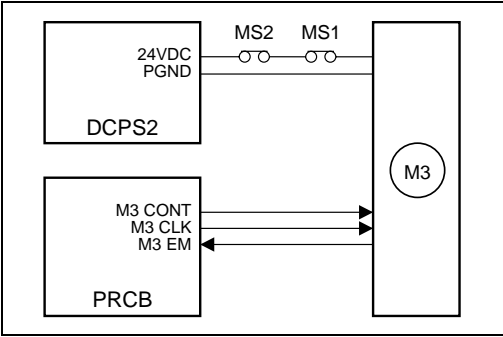
- Developing sleeve
- Agitator wheel
- Agitator screws

2. Flow of developer

The developer inside the developing unit is supplied to the developing sleeve by the agitator wheel, and maintained at a constant thickness by the developing regulation plate (bristle height regulation plate). The developer remaining on the developing sleeve is returned to the agitator screws.



[3] M3 (Developing Unit Drive) Control



M3 (developing) is controlled by the PRCB (printer control board) and the motor drive power is supplied by DCPS2 (DC power supply unit 2). When the front left or right door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to M3, stopping the voltage supply to the developing sleeve.

1. Operation

M3 which is the 24V driven DC motor drives the developing sleeve and agitator. M3 equipped with speed control circuit send the rotation error signal to PRCB when PLL lock is released longer than the specified time period. M3 starts after the specified time interval from the start switch is ON, and stops after the specified time interval from the charging wire unit stops charging.

2. Signals

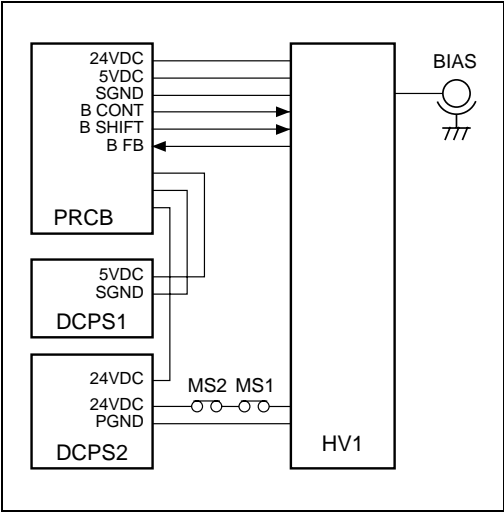
a. Input signals

- (1) M3 EM (M3 to PRCB)
M3 fault detection signal.
[H]: Abnormal rotation (when PLL is unlocked for more than 1.5 seconds)
[L]: Normal rotation

b. Output signals

- (1) M3 CONT (PRCB to M3)
M3 drive control signal.
[L]: M3 ON
[H]: M3 OFF

[4] Developing Bias Control



The developing bias is controlled by PRCB (printer control board) via the HV1 (high voltage unit 1). When the front left or right door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to HV1, stopping the voltage supply to the developing sleeve.

1. Operation

The developing bias voltage is applied to the developing sleeve based on the M2 (drum) rotation state signal.

2. Signals

a. Input signals

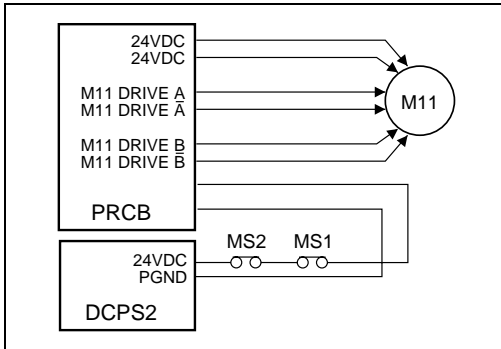
- (1) B FB (HV1 to PRCB)
Developing bias voltage feedback signal.
This signal monitors the developing bias voltage. It is an 0V to 5V analog signal corresponding to the output level.

b. Output signals

- (1) B CONT (PRCB to HV1)
Developing bias output ON/OFF control signal.
[L]: Developing bias ON
[H]: Developing bias OFF
- (2) B SHIFT (PRCB to HV1)
Developing bias output level control signal.
The developing bias output level is controlled according to the duty ratio of the pulse (PWM) signal sent from the PRCB.

B SHIFT duty	20% to 80%
Developing bias output range	-300 V to -800 V

[5] Toner Density Control



The toner density is controlled directly by PRCB (printer control board) by controlling M11 (toner supply 1). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motor, stopping the M11.

1. Operation

a. Toner density detection

Concerning the toner density, the reference patch density is detected by a patch detection method. This method outputs the corresponding analog voltage signal to the PRCB.

The PRCB compares the detected voltage with the reference value to determine whether toner must be added.

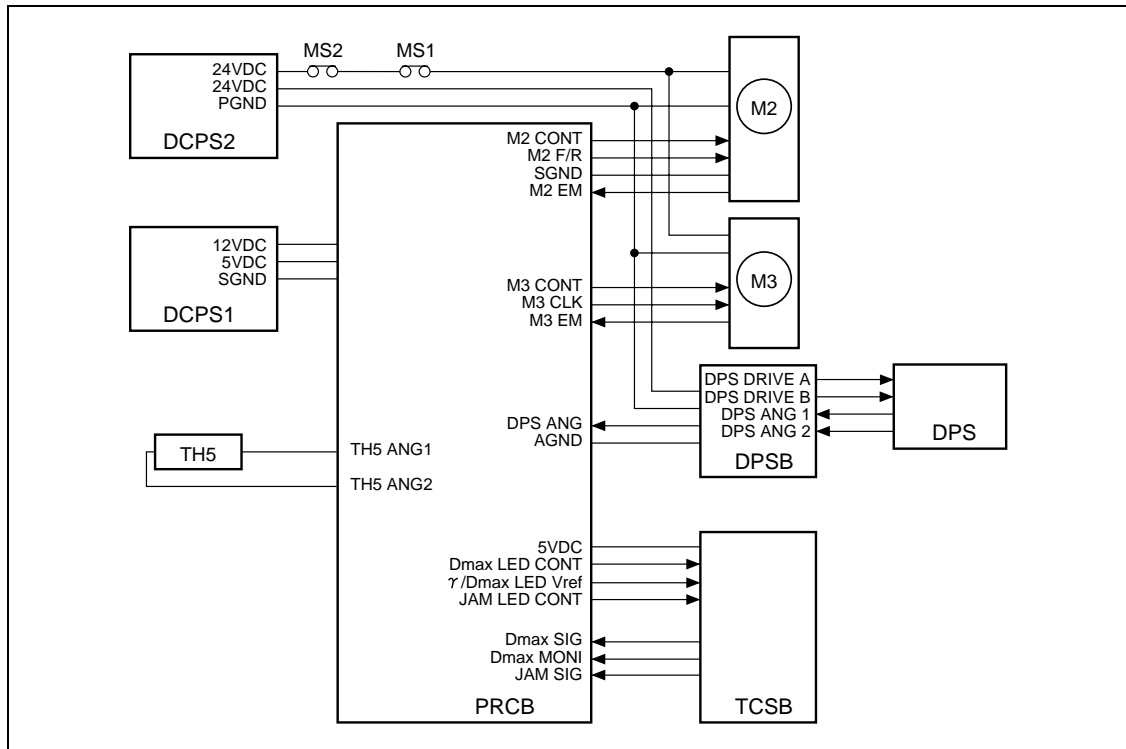
b. Toner supply operation

Upon read of the patch, M11 is turned ON to supply toner. The time needed to add toner depends on the paper size.

2. Signals

a. Output signals

- (1) M11 DRIVE A, \bar{A} (DCDB to M11)
M11 A-phase drive signal.
- (2) M11 DRIVE B, \bar{B} (DCDB to M11)
M11 B-phase drive signal.

[6] Dmax Control

Dmax control is performed by the TCSB (toner control sensor board), M2 (drum), M3 (developing), and so on. These parts are controlled by the PRCB (printer control board). Related boards and sensors are DPSB (drum potential sensor board), DPS (drum potential sensor), and TH5 (drum temperature sensor).

When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motor, stopping the M2 and M3.

1. Operation

The purpose of Dmax control is to adjust the maximum density to the reference level for each machine.

a. Dmax control**(1) Method**

Latent images are created several times at the maximum exposure level, images are developed with the rotational speed of the developing sleeve varied, then each density is read by the Dmax sensor (PD1) on the TCSB.

The developing sleeve speed detected when the density has reached the reference level is recorded as the optimum sleeve speed and the developing is performed at this optimum sleeve rotation speed.

(2) Timing

- When the fixing temperature is lower than 50°C at power ON.
- At the end of job after every 20,000 copies.

2. Signals

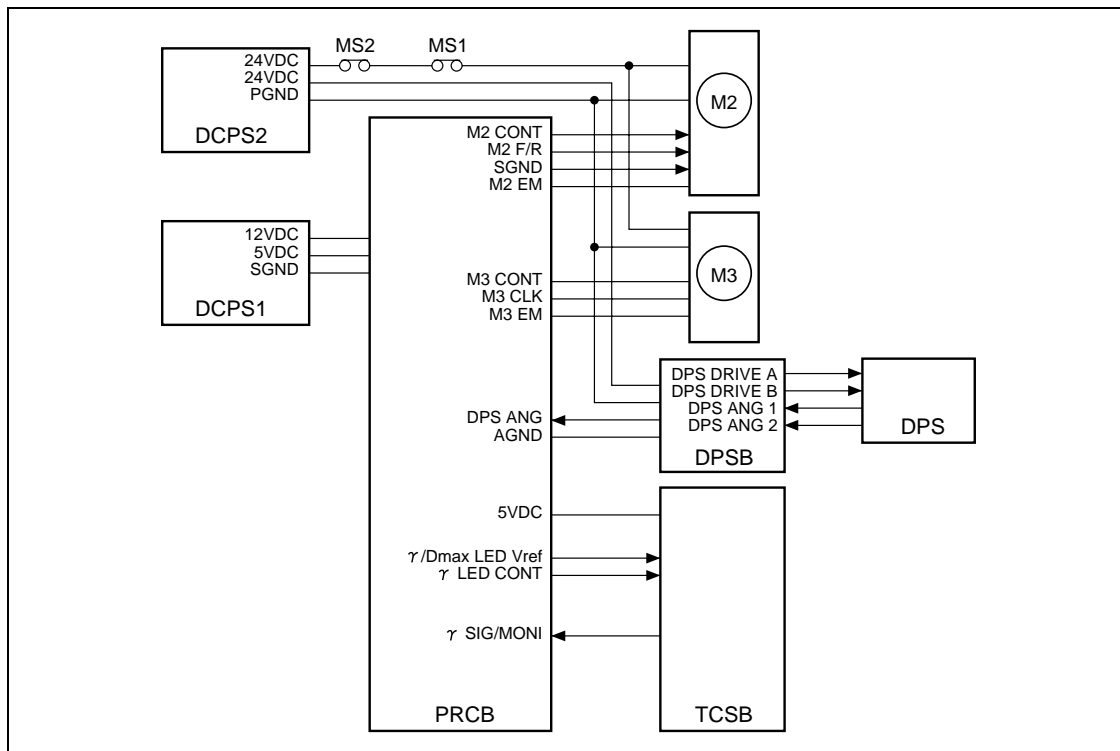
a. PRCB input signals

- (1) Dmax SIG (TCSB to PRCB)
Output voltage of the Dmax value detection sensor (PD1) on the TCSB.
Reference voltage: 2.5V
- (2) Dmax MONI (TCSB to PRCB)
This signal monitors the light reflected by the drum surface (without toner).
The voltage applied to the Dmax detection LED is corrected by $\gamma/\text{Dmax LED Vref}$ so that the output voltage becomes 4V (calibration).
Reference voltage: 4V
<Timing>
a) Before D max correction.
- (3) JAM SIG (ITCSB to PRCB)
This signal detects a jam caused by paper wrapping around the drum. A jam is detected when the voltage becomes 4.0V or more.
[L]: LED ON
[H]: LED OFF

b. Output signals

- (1) Dmax LED CONT (PRCB to TCSB)
This signal turns ON/OFF the D max LED.
- (2) Dmax LED Vref (PRCB to TCSB)
Power supply line for PD1 LED on TSCB. The voltage is adjusted so as the Dmax MONI signal to be 4 V.
- (3) JAM LED CONT (PRCB to TCSB)
This signal turns ON/OFF the JAM LED.
[L]: LED ON
[H]: LED OFF

[7] Gradation Correction Control



Gradation correction control is performed by the TCSB (toner control sensor board), M2 (drum), M3 (developing), and so on. These parts are controlled by the PRCB (printer control board).

1. Operation

The gradation characteristics of the toner density versus exposure amount at the image forming section (drum area) are detected to obtain a linear relation between the image density on a document and the copying image density (toner density).

(1) Method

Exposure is performed with the laser PWM varied in several steps, and development is performed at the toner transfer sleeve speed obtained by Dmax correction.

Next, each density is read by γ sensor (PD2) on the TCSB to detect the gradation characteristics of image density.

The gradation characteristics obtained here are used as the values for correcting the laser exposure amount.

(2) Timing

- When the fixing temperature is lower than 50°C at power ON.
- At the end of job after every 20,000 copies.

2. Signals

a. PRCB Input signals

(1) γ SIG/MONI (TCSB to PRCB)

Output voltage from the γ sensor (PD2) on the TCSB. This signal monitors the light reflected by the drum surface (without toner).

The voltage applied to the gradation detection LED is corrected by γ /Dmax LED Vref so that the output voltage becomes 4.5V (calibration).

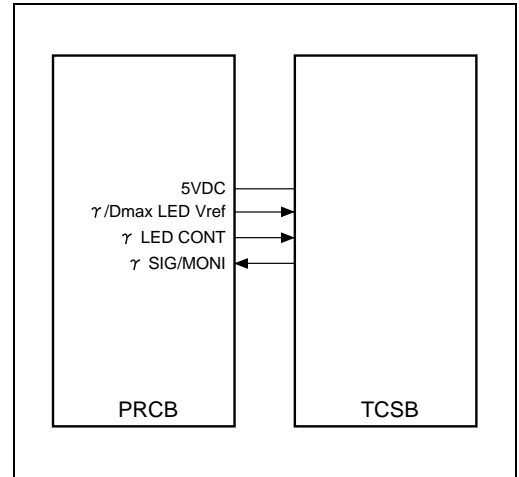
Reference voltage: 4.5V

<Timing>

Before gradation correction.

b. PRCB Output signals

- (1) γ LED CONT, γ CONT (PRCB to TCSB)
ON/OFF control signal for gradation detection LED.
[L]: LED ON
[H]: LED OFF
- (2) γ Dmax LED Vref, Vref (PRCB to TCSB)
Power supply line to the γ LED on the TCSB.
The voltage applied to the γ LED is adjusted so that the γ MONI signal becomes 4.5V.

[8] Dot Diameter Correction Control

Dot diameter is detected by TCSB (toner control sensor board) and controlled by PRCB (printer control board).

1. Operation

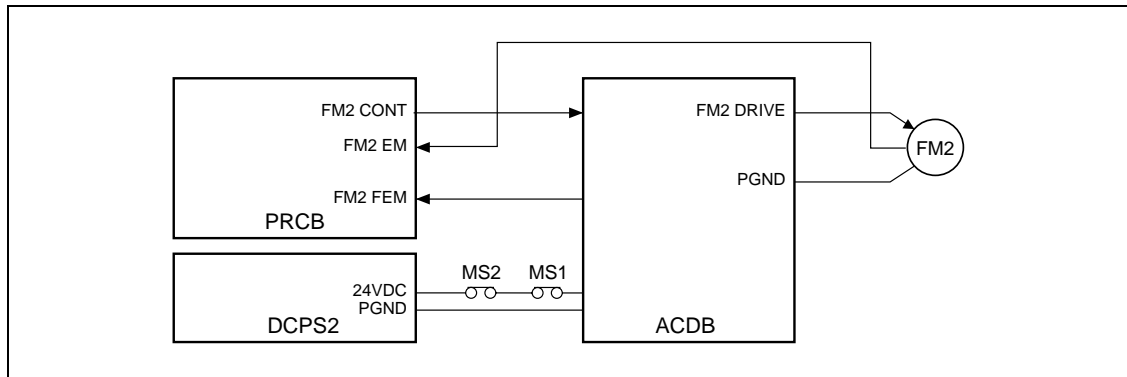
Dot diameter correction is performed to prevent the fluctuation of 1 dot laser beam in diameter due to a soil in the writing unit or a change of developing ability.

(1) Method

Creates several same condensation dot pattern patches changing the laser power and reads them with γ sensor (PD2). Uses the laser power where the γ sensor output reaches reference voltage as MPC.

(2) Timing

- a) At the end of job after every 20,000 copies.

[9] FM2 (Developing Suction) Control

FM2 (Developing suction) is controlled by the PRCB (printer control board) via the ACDB (AC drive board). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply, stopping FM2.

1. Operation**a. ON timing**

During idling: FM2 turns ON when M2 (drum) turns ON.

During copying: FM2 turns ON when M1 (main) turns ON.

b. OFF timing

During idling: FM2 turns OFF when M2 turns OFF or in the specified interval after completion of copying.

During copying: Always ON.

2. Signals**a. PRCB input signals**

- (1) FM2 EM (FM2 to PRCB)
FM2 fault detection signal.
[L]: FM2 is normal.
[H]: FM2 is abnormal.

- (2) FM2 FEM (ACDB to PRCB)
Signal detecting whether the 24V fuse for FM2 is blown.
[L]: Blown fuse is not detected.
[H]: Blown fuse is detected.

b. PRCB output signals

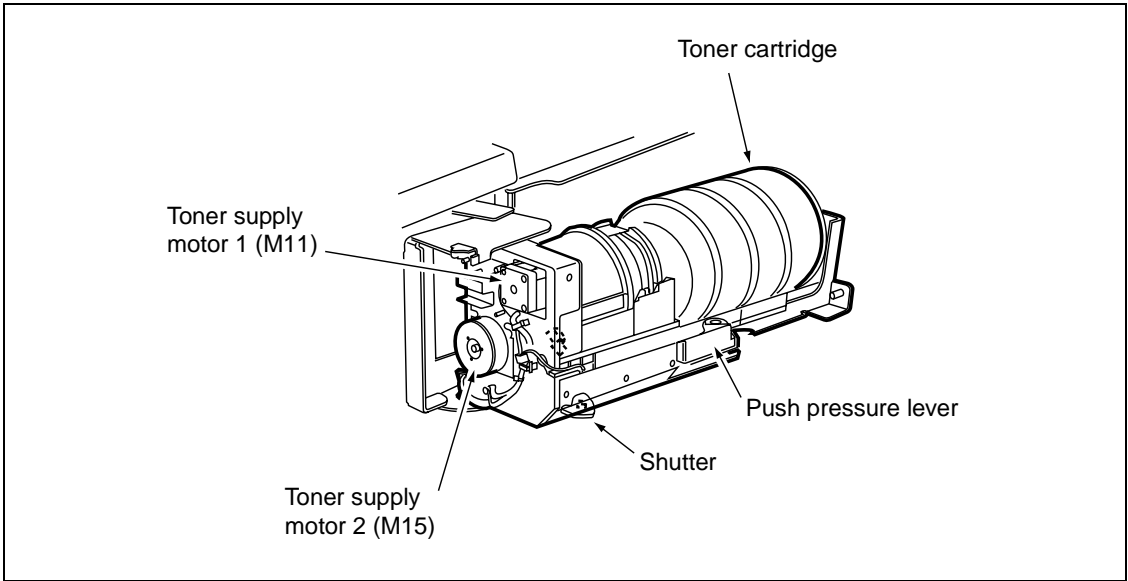
- (1) FM2 CONT (PRCB to ACDB)
FM2 control signal.
[L]: FM2 ON
[H]: FM2 OFF

c. ACDB output signal

- (1) FM2 DRIVE (ACDB to FM2)
FM2 drive signal.
[L]: FM2 OFF
[H]: FM2 ON

TONER SUPPLY UNIT

[1] Composition



[2] Mechanisms

Mechanism	Method
Toner supply	Supply by screw
Toner level detection	Piezoelectric method 130±30 g
*1 Toner agitation	Agitator plates
*2 Toner cartridge	Rotary cartridge Capacity: 1320 g
Toner leakage prevention	Toner supply shutter

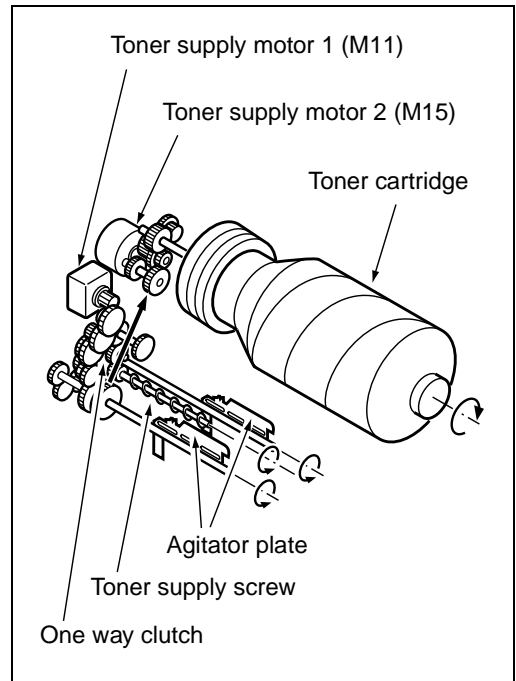
*1 Toner agitation

Toner agitator plates are driven by the following two motors through the gear unit:

- Toner supply motor 1 (M11): Drives the toner supply screw.
- Toner supply motor 2 (M15): Drives the toner cartridge.

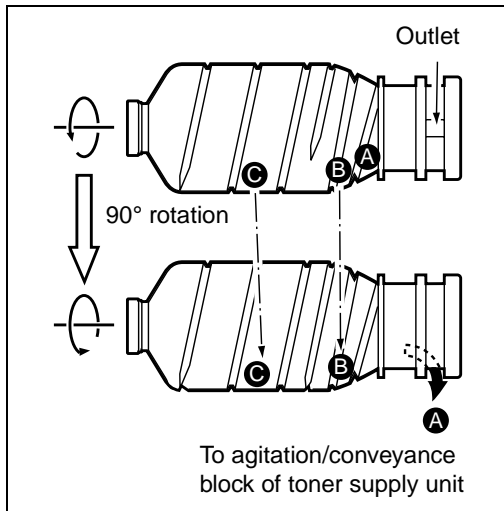
The agitator plates rotate faster when toner supply motor 1 (M11) runs than when toner supply motor 2 (M15) runs. When the two motors are running simultaneously, the one-way clutch installed on the agitator shaft selects toner supply motor 2 (M15).

The agitator plates prevent the toner from clumping and accumulating on TLD (remaining toner detection sensor).

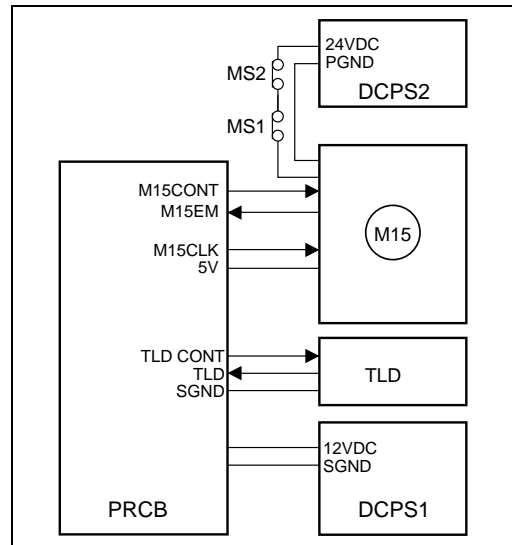


*2 Toner cartridge

When the toner cartridge rotates, toner is fed to the outlet of the cartridge through the spiral groove on the surface of the toner cartridge. When the outlet of the cartridge faces downward, toner flows out of the outlet into the agitation/supply section of the toner supply unit.



[3] Toner Level Detection Control



Toner level detection is controlled by the TLD (toner level detection) and the PRCB (printer control board). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motor, stopping M5 (toner supply 2).

1. Operation

a. Toner level detection

A piezoelectric device is used as the TLD. When the level of toner in the cartridge becomes low, the toner supply signal is output to the PRCB. As a result, a message is displayed on the LCD connected to the OB1 (operation board 1).

b. Detection timing

The detection timing is as follows:

- Power-on
- When the front door opens or closes
- During copying

c. Toner supply to toner supply unit

When the no toner state is detected by TLD, M15 (toner supply 2) is turned ON to supply toner from the toner cartridge to the toner supply unit.

d. Detection of no toner state in toner cartridge

If the level of toner is not detected by TLD after M15 has been held ON for a specified period of time, the toner cartridge is assumed to be empty.

2. Signals

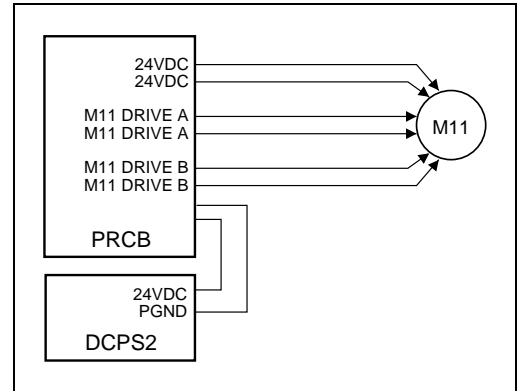
a. Input signal

- (1) TLD (TLD to PRCB)
When the level of toner in the cartridge becomes low, this signal goes low [L], displaying a message on the LCD connected to the OB1.
- (2) M15 EM (M15 to PRCB)
M15 fault detection signal.
[L]: M15 normal
[H]: M15 Abnormal

b. Output signals

- (1) TLD CONT, TSEN_CONT (PRCB to TLD)
TLD power control signal.
The TLD is powered only when it is detecting the toner level.
- (2) M15 CONT (PRCB to M15)
M15 control signal.
[L]: M15 ON
[H]: M15 OFF
- (3) M15 CLK (PRCB to M15)
Clock signal for M15.

[4] M11 (Toner Supply 1) Control



M11 (Toner Supply 1) is controlled directly by PRCB (printer control board). The toner density is detected by TCSB (toner control sensor board).

1. Operation

a. Detection of toner density

The Dmax sensor (PD1) mounted on the TCSB detects the density of the toner control chart developed on the drum surface to output the signal corresponding to the detected density to the PRCB.

b. Toner supply

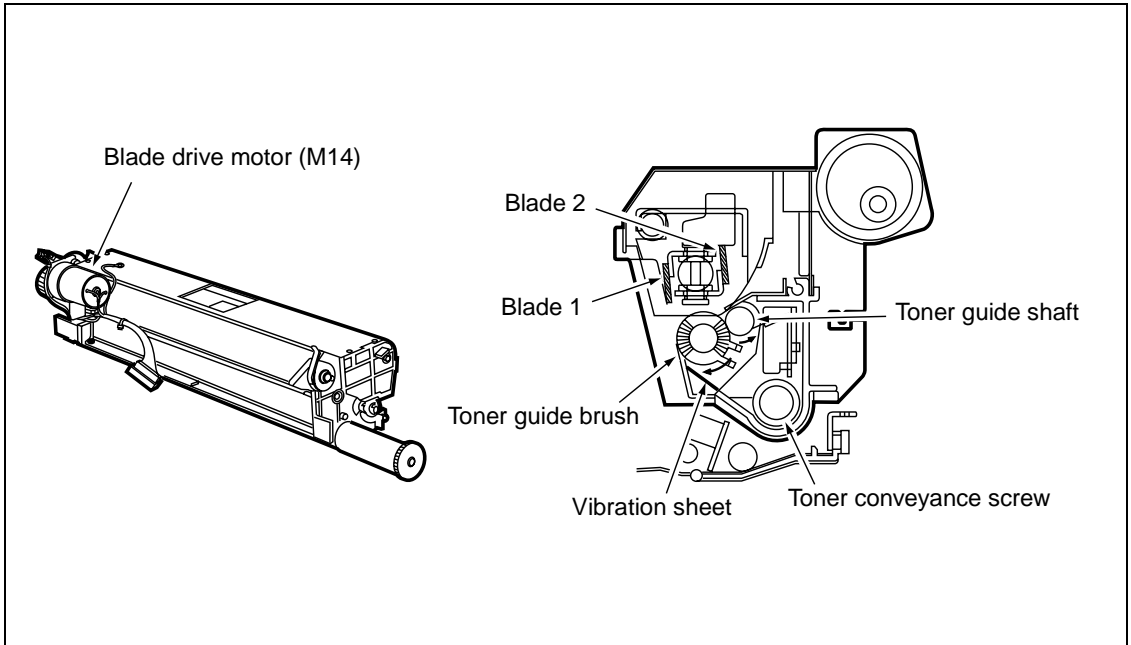
When the voltage detected by the TCSB is below the specified value, the PRCB issues a control signal to drive the M11. The relationship between the paper size and toner supply time is summarized in the following table:

Paper size	Supply time (sec.)
A3	1.14
B4	0.86
F4	0.86
A4	0.57
A4R	0.57
B5	0.43
B5R	0.43
A5	0.29
A6	0.22

Blank page

CLEANING/TONER RECYCLE UNIT

[1] Composition



[2] Mechanisms

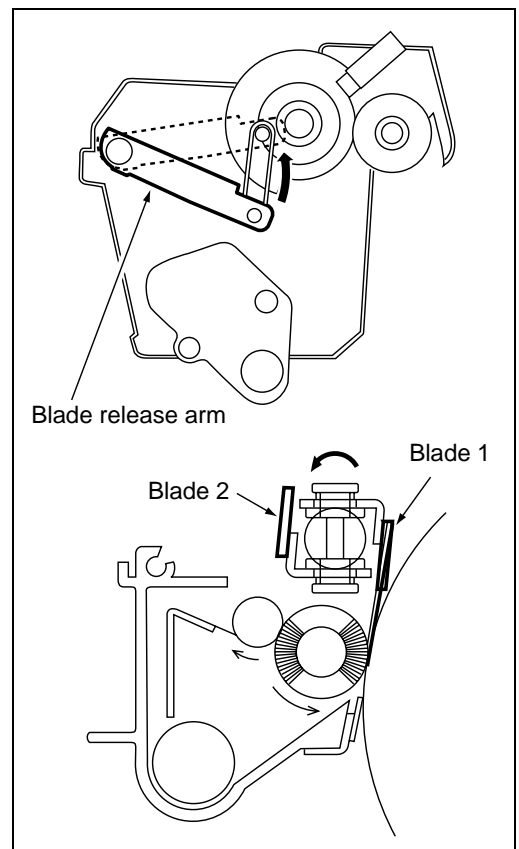
	Mechanism	Method
*1	Drum cleaning	Cleaning blades (switched automatically)
	Toner collection	Toner guide brush
*2	Toner recycle	Toner conveyance by screw

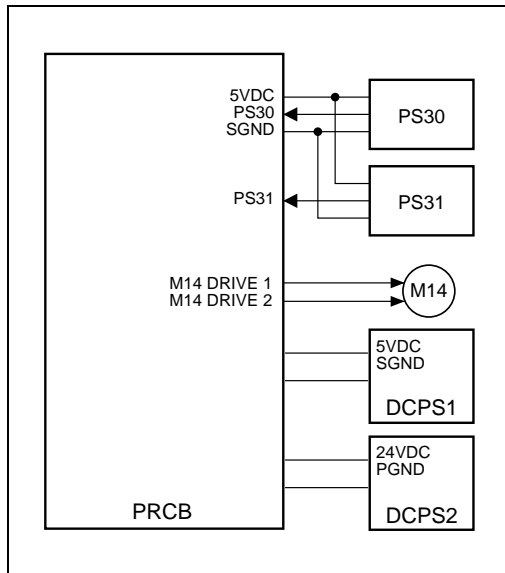
*1 Drum cleaning

Two cleaning blades are installed in the cleaning section. When the blade motor (M14) rotates, the blade release arm is pressed down. At the same time, the cleaning blade drive shaft with two cleaning blades 1 and 2 is turned by the wire wound around the shaft, thereby switching between blades 1 and 2 automatically, increasing the usable life of the blades.

*2 Toner collection

Toner removed by the cleaning blade is collected by the toner guide brush to be reused.



[3] M14 (Blade) Control

M14 (blade) is a 24V DC driven motor and drives the cleaning blades. By M14, the cleaning blade contacts on the drum surface slight pressing or pressing to clean the drum surface. These two blades are automatically switched by M14. M14 is controlled directly by PRCB (printer control board). Related signals are PS30 (blade 1) and PS31 (blade 2).

1. Operation

M14 turns ON/OFF in synchronized with ON/OFF of M2 (drum).

The blade is controlled (pressing, slight pressing, and switching) by PS30 and PS31 detecting the blade position, and M14 rotating forward and backward.

The following table shows the relationship between PS30/PS31 and blade position.

Sensor	Blade Position				
	Pressing	CW/ CCW	Slight pressing	CW/ CCW	Switching
PS30	OFF	OFF	ON or OFF*	ON	ON
PS31	ON	OFF	OFF	OFF	ON

*Note: CW/CCW indicate the M14 rotating direction for pressing, slight pressing, and switching. The sensor logic for slight pressing position is different between CW and CCW rotation.

CCW: ON

CW: OFF

a. Blade auto switching control

This unit uses two blades with M14 rotating to automatically replace blades. During automatic blade replacement, M2 (drum), M3 (developing), developing bias, guide plate voltage, and PCL are turned ON, toner is adhered to the drum, and then the blade cleans it to prevent blade peeling.

<Timing>

a) At the end of job after every 20,000 copies.

*Changeable with 25 mode DIPSW.

b. Blade setting mode

Blade setting mode is available in 36 mode as a task after blade replacement during maintenance. Blade setting mode adheres toner on drum as in blade auto replacement control and then the blade cleans toner to prevent blade peeling.

c. Black stripe creation control

In order to improve durability of the blade (stabilize load, prevent paper dust crushing), a black stripe toner is adhered on drum once every five copies and then cleaned.

*Changeable with 25 mode DIPSW.

2. Signals**a. Input signal**

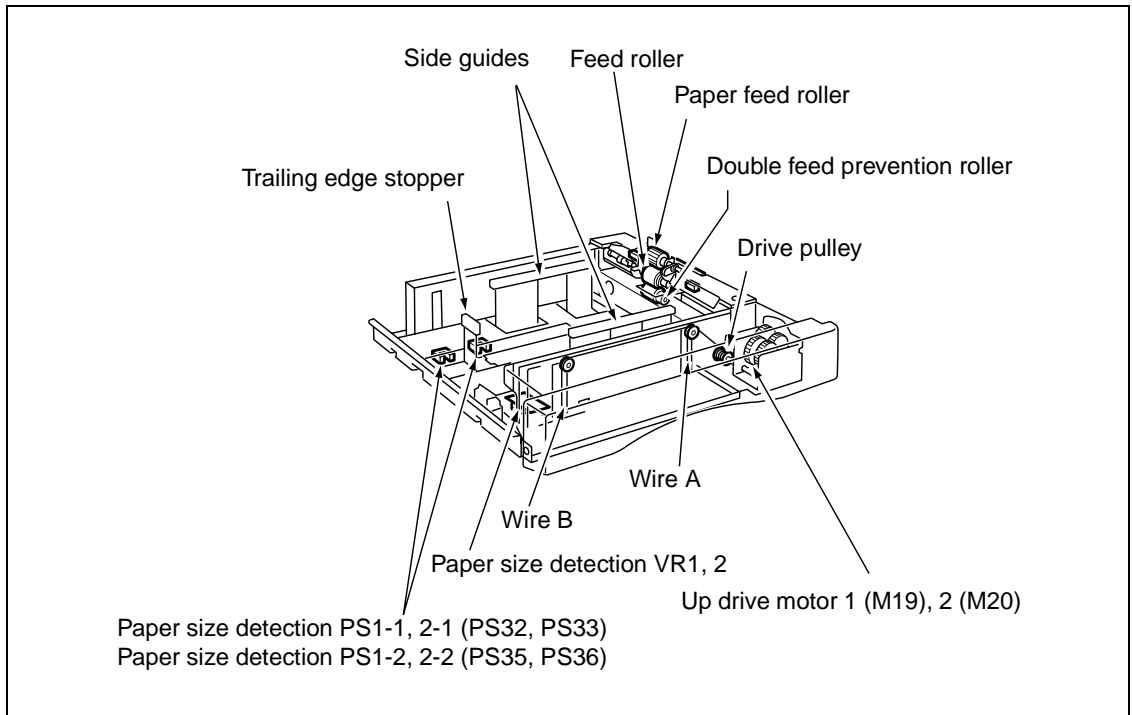
- (1) PS30 (PS30 to PRCB)
Blade position detection signal 1.
- (2) PS31 (PS31 to PRCB)
Blade position detection signal 2.

b. Output signal

- (1) M14 DRIVE 1,2 (PRCB to M14)
M14 drive control signal.

TRAY 1/2 PAPER FEED UNIT

[1] Composition



Caution: Trays 1 and 2 have the same shape and mechanisms.

[2] Mechanisms

	Mechanism	Method
*1	Paper lift-up	Up: Paper up/down plate driven by up/down wires Down: Falls down by its own weight
	Tray loading	Load from the front door side
	Double feed prevention	Torque limiter
*2	1st paper feed	Paper feed roller Pick up solenoid 1 (SD8), 2 (SD9)
	No paper detection	Photosensor + Actuator
*3	Paper size detection (Universal)	Width: VR Length: Photosensor + Actuators (two)

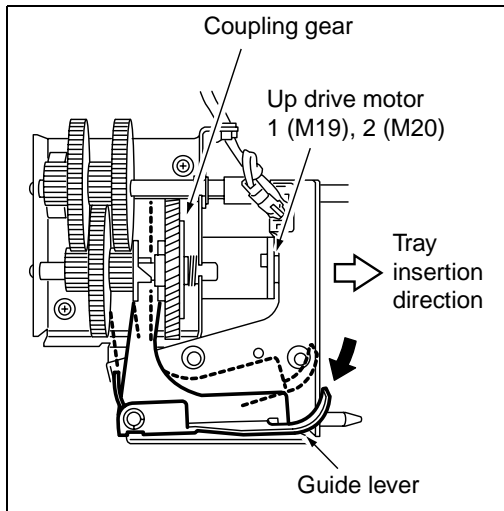
*1 Paper lift-up

a) Hoisting of up/down plate

The up/down plate is lifted up by up/down wires. When the paper tray is loaded, the up drive motor 1 (M19), 2 (M20) rotates to wind the up/down wires around the drive pulleys and consequently the plate moves up and push up papers set in the tray. When the tray upper limit PS1 (PS20), 2 (PS21) detects the actuator of the plate that has moved up, the up drive motor 1 (M19), 2 (M20) stops.

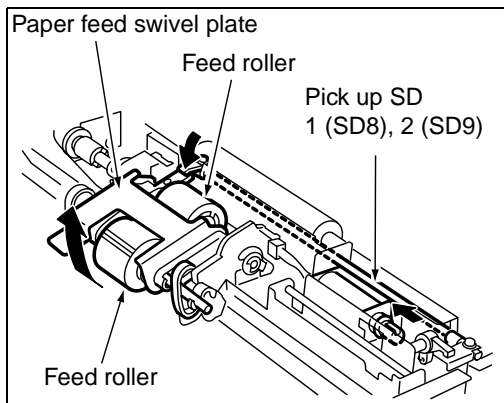
b) Lowering of up/down plate

When the paper feed tray is pulled out, the guide lever shown below is disengaged from the rail, thus releasing the coupling gear that transmits the drive force of the up drive motor 1 (M19), 2 (M20) to the drive pulleys. Then, the up/down plate falls down naturally by the weight of papers.



*2 1st paper feed

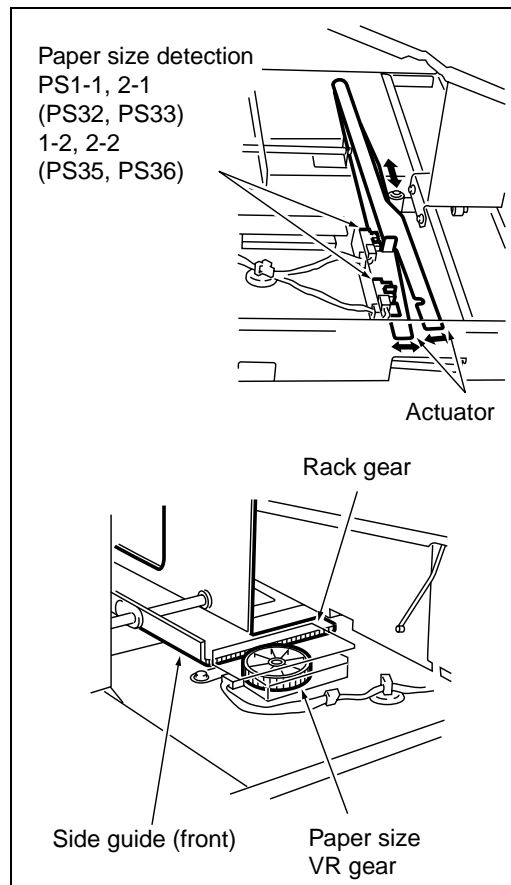
To keep a constant contact pressure on the paper by the paper feed roller at the time of paper pick-up, the weight of the paper feed roller itself is used. The pick up solenoid 1 (SD8), 2 (SD9) moves the paper feed swivel plate down so that the paper feed roller mounted on the plate falls down to touch the paper as well. Then, the paper feed roller picks up a paper and feeds it toward the paper conveyance unit. The first paper feed solenoid moves the paper feed swivel plate down only when paper is to be fed. Otherwise, it releases contact.

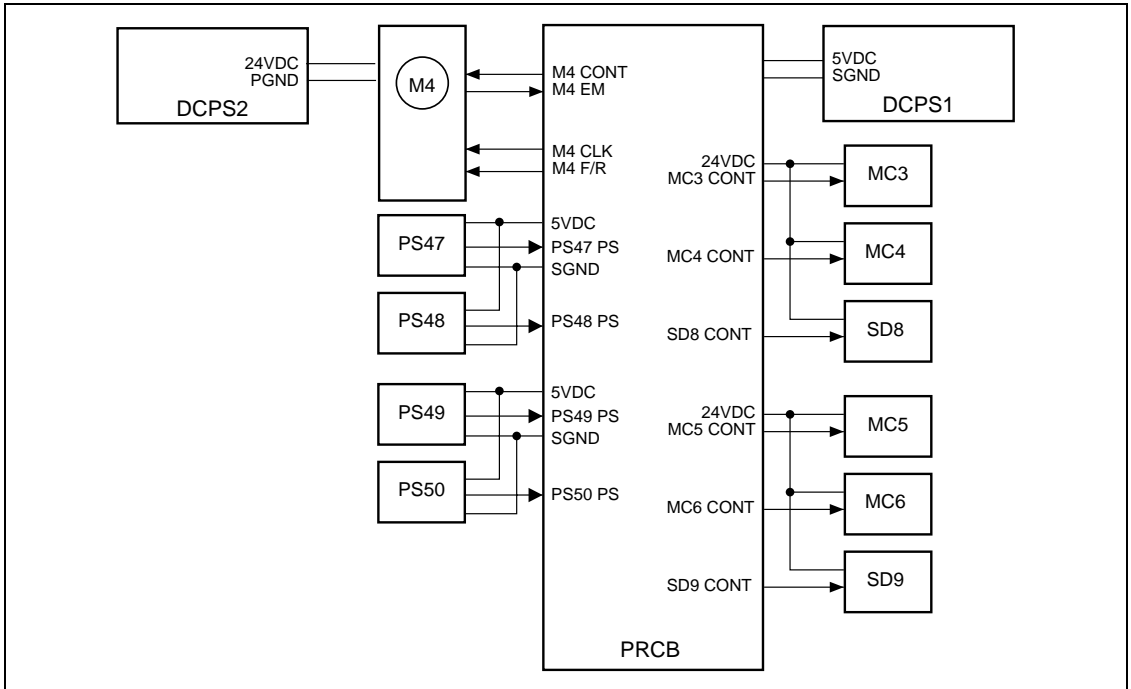


*3 Paper size detection

Length: The rear guide of the tray moves, causing the paper size detection actuator to move as well. As a result, the two paper size detection PS1-1, 2-1 (PS32, PS33), 1-2, 2-2 (PS35, PS36) turn ON and/or OFF. Thus, the paper size is automatically determined according to the combination of the ON/OFF states of these PSs.

Width: The side guide of the tray moves, causing the side guide (front) rack gear of the paper size detection arm to turn the gear of the paper size detection VR1, 2. Thus, the paper size is automatically determined according to the change in the resistance value of the VR.



[3] First Paper Feed Control

The 1st paper feed from tray 1 or 2 takes place as the result of the transmission of the drive force from M4 (paper feed) to each paper feed roller, via MC3 (feed MC 1), MC5 (feed MC 2), and MC4 (pre-registration MC1), MC6 (pre-registration MC 2). SD8 (pickup SD1) or SD9 (pickup SD 2) causes the roller to pick up paper.

The above operations are controlled by the PRCB (printer control board). Related signals include: PS47 (paper feed 1), PS49 (paper feed 2), PS48 (paper pre-registration 1), and PS50 (paper pre-registration 2).

1. Operation**a. First paper feed timing (feed MC drive)**

- (1) When printing of the first copy starts:
Timing that is determined by the P counter from when copying starts
- (2) When printing of the second copy starts:
When PS47 or PS49 of the first sheet of copy is OFF.
- (3) OFF timing
After a specified count from turns ON of PS48, and PS50.

*Changeable in 36 mode

b. Feed timing (pre-registration drive)

- (1) ON timing
First sheet: When a preset time interval has passed after turning ON of MC3 or MC5.
Second sheet: When a preset time interval has passed after turning ON of MC1 (registration).
- (2) OFF timing
When PS47 or PS49 is turned OFF.

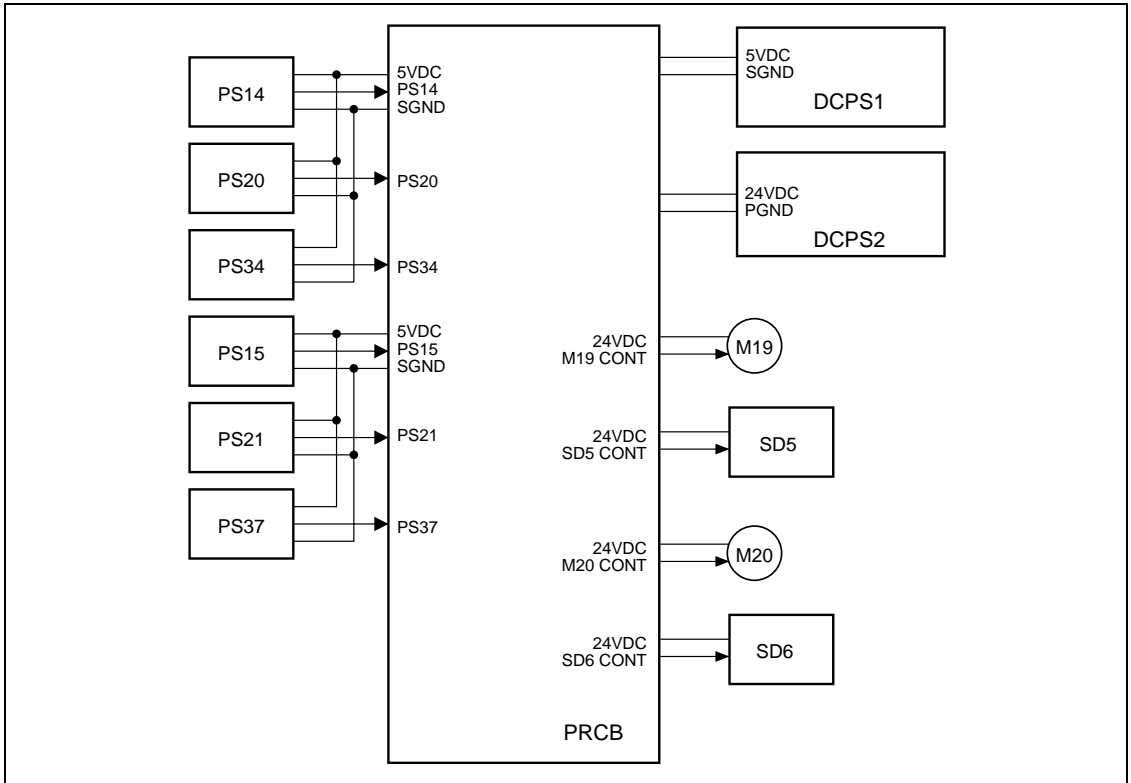
2. Signals**a. PRCB input signals**

- (1) PS47 (PS47 to PRCB)
Paper passage detection signal (tray 1).
[L]: Paper passed.
[H]: Paper not passed.
- (2) PS49 (PS49 to PRCB)
Paper passage detection signal (tray 2).
[L]: Paper passed.
[H]: Paper not passed.
- (3) PS48 (PS48 to PRCB)
First paper feed paper detection signal (tray 1).
[L]: Paper passed.
[H]: Paper not passed.
- (4) PS50 (PS50 to PRCB)
First paper feed paper detection signal (tray 2).
[L]: Paper passed.
[H]: Paper not passed.
- (5) PS18 (PS18 to PRCB)
Paper passage detection signal at the exit of tray 1 (for jam detection).
[L]: Paper exists.
[H]: Paper does not exist.
- (6) PS53 (PS53 to PRCB)
Paper passage detection signal at the exit of tray 2 (for jam detection).
[L]: Paper exists.
[H]: Paper does not exist.

b. PRCB output signals

- (1) MC3 CONT (PRCB to MC3)
MC3 drive control signal (tray 1).
[L]: MC3 ON
[H]: MC3 OFF
- (2) MC5 CONT (PRCB to MC5)
MC5 drive control signal (tray 2).
[L]: MC5 ON
[H]: MC5 OFF
- (3) MC4 CONT (PRCB to MC4)
MC4 drive control signal (tray 1).
[L]: MC4 ON
[H]: MC4 OFF
- (4) MC6 CONT (PRCB to MC6)
MC6 drive control signal (tray 2).
[L]: MC6 ON
[H]: MC6 OFF
- (5) SD8 CONT (PRCB to SD8)
SD8 drive control signal (tray 1).
[L]: SD8 ON
[H]: SD8 OFF
- (6) SD9 CONT (PRCB to SD9)
SD9 drive control signal (tray 2).
[L]: SD9 ON
[H]: SD9 OFF
- (7) M4 CLK (PRCB to M4)
Clock signal for M4.
- (8) M4 F/R (PRCB to M4)
Rotation direction control signal for M4.

[4] Paper Up Drive Control



Papers stacked in the tray are pushed up by transmitting the drive force of M19 (up drive 1) or M20 (up drive 2) to the paper up/down plate in the tray via up/down wires. M19 and M20 are controlled directly by PRCB (printer control board). Related signals are PS20 (upper limit detection 1), PS21 (upper limit detection 2), PS34 (remaining paper detection 1) and PS37 (remaining paper detection 2). To prevent pull-out of tray during copying operation that cause paper jamming, a tray lock mechanism is implemented by PS14 (handle release 1), PS15 (handle release 2), SD5 (lock SD1), and SD6 (lock SD2).

1. Operation

a. Paper up drive control

When tray 1 or 2 is loaded, M19 or M20 goes ON for a fixed time, raising the paper up/down plate in the tray. When PS20 or PS21 detects the upper limit of paper as the paper up/down plate in the tray goes up, it goes ON and consequently M19 or M20 goes OFF, stopping raising the paper up/down plate. When PS20 or PS21 goes OFF after a paper is fed, M19 or M20 goes ON

again, moving the paper up/down plate upward. The up/down plate in the tray is lowered mechanically by its own weight.

b. Paper up drive timing

- (1) ON timing
M19 or M20 is turned ON when loading of a tray is detected (by shorting wires at both ends of the drawer connector) or when PS26 or PS27 is turned ON.
- (2) OFF timing
M19 or M20 is turned OFF when PS20 or PS21 is turned ON.

c. Remaining Paper Detection Control

The level of paper remaining in each tray is detected according to the time that M19 or M20 requires to lift up the paper up/down plate when the tray is set. This lift-up time (operation time of M19 or M20) is recorded in the PRCB. Subsequently, remaining paper is detected by the paper feed counter. The detected remaining paper level is displayed on the operation panel in 5 steps. PS34 and PS37 are used to detect the remaining paper level when it lowers below about 10%.

d. Tray lock control

When the tray handle is gripped, PS14 or PS15 is turned ON. This signal then causes SD5 or SD6 to go ON, releasing the lock.

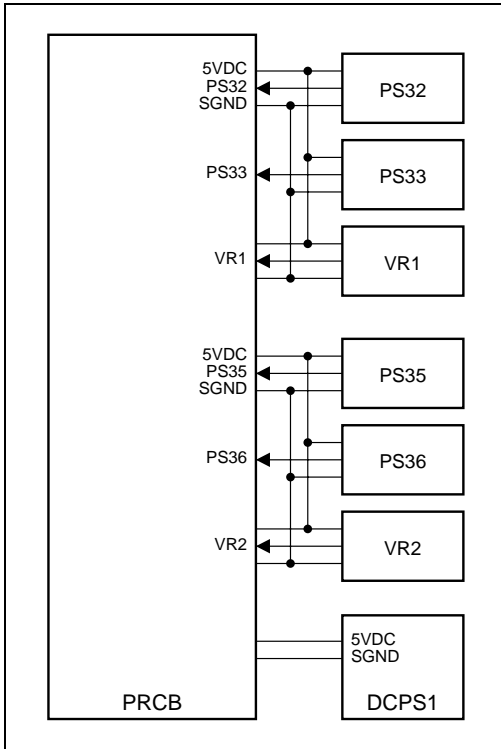
b. PRCB output signals

- (1) M19 CONT (PRCB to M19)
M19 ON/OFF control signal (tray 1).
[L]: M19 ON
[H]: M19 OFF
- (2) M20 CONT (PRCB to M20)
M20 ON/OFF control signal (tray 2).
[L]: M20 ON
[H]: M20 OFF
- (3) SD5 CONT (PRCB to SD5)
SD5 drive control signal (tray 1).
[L]: SD5 ON
[H]: SD5 OFF
- (4) SD6 CONT (PRCB to SD6)
SD6 drive control signal (tray 2).
[L]: SD6 ON
[H]: SD6 OFF

2. Signals**a. PRCB input signals**

- (1) PS14 (PS14 to PRCB)
Tray drawer handle detection signal (tray 1).
[L]: Detected
[H]: Not detected
- (2) PS15 (PS15 to PRCB)
Tray drawer handle detection signal (tray 2).
[L]: Detected
[H]: Not detected
- (3) PS20 (PS20 to PRCB)
Paper upper limit detection signal (tray 1).
[L]: Not detected
[H]: Detected
- (4) PS21 (PS21 to PRCB)
Paper upper limit detection signal (tray 2).
[L]: Not detected
[H]: Detected
- (5) PS34 (PS34 to PRCB)
Remaining paper detection signal (tray 1).
[L]: Detected
[H]: Not detected
- (6) PS37 (PS37 to PRCB)
Remaining paper detection signal (tray 2).
[L]: Detected
[H]: Not detected

[5] Paper Size Detection Control



The paper size in tray 1/2 is detected using PS32 (paper size 1-1), PS33 (paper size 2-1), PS35 (paper size 1-2), PS36 (paper size 2-2), paper size detection VR1, and paper size detection VR2. Based on the detection signals, the PRCB (printer control board) judges the paper size.

1. Operation

The length of paper is detected using PS32, PS33, PS35, and PS36. Variable resistors (VR1 and VR2) are installed at the bottom of the tray to detect the width of paper.

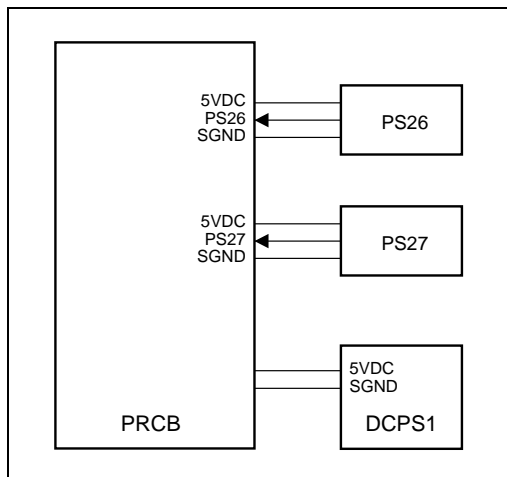
The relationships between the switches and paper sizes (lengths) are as follows:

Paper size	8.5 x 11 or less	A4R to B5R	F4	8.5 x 14 or larger
Switch				
PS32 or PS35	OFF	OFF	ON	ON
PS33 or PS36	OFF	ON	ON	OFF

2. Signals

a. Input signals

- (1) PS32 (PS32 to PRCB)
Paper size detection switch ON/OFF signal (tray 1).
- (2) PS33 (PS33 to PRCB)
Paper size detection switch ON/OFF signal (tray 1).
- (3) PS35 (PS35 to PRCB)
Paper size detection switch ON/OFF signal (tray 2).
- (4) PS36 (PS36 to PRCB)
Paper size detection switch ON/OFF signal (tray 2).
- (5) VR1 (VR1 to PRCB)
Paper width detection signal (tray 1).
- (6) VR2 (VR2 to PRCB)
Paper width detection signal (tray 2).

[6] No Paper Detection Control

No paper in the tray is detected by PS26 (no paper 1) and PS27 (no paper 2) which are controlled by the PRCB (printer control board).

1. Operation

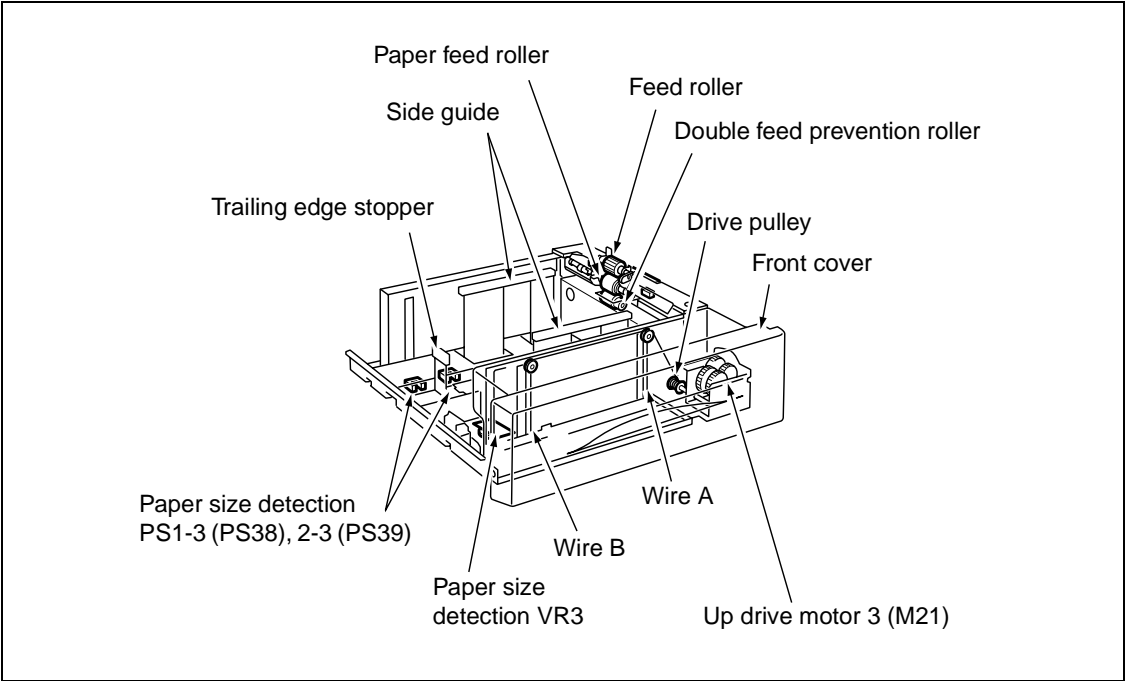
When the tray becomes empty, PS26 or PS27 is turned ON, displaying a message on LCD via the OB1 (operation board 1).

2. Signals**a. Input signals**

- (1) PS26 (PS26 to PRCB)
No paper detection signal (tray 1).
[L]: Paper does not exist in tray
[H]: Paper exists in tray
- (2) PS27 (PS27 to PRCB)
No paper detection signal (tray 2).
[L]: Paper does not exist in tray
[H]: Paper exists in tray

TRAY 3 PAPER FEED UNIT

[1] Composition



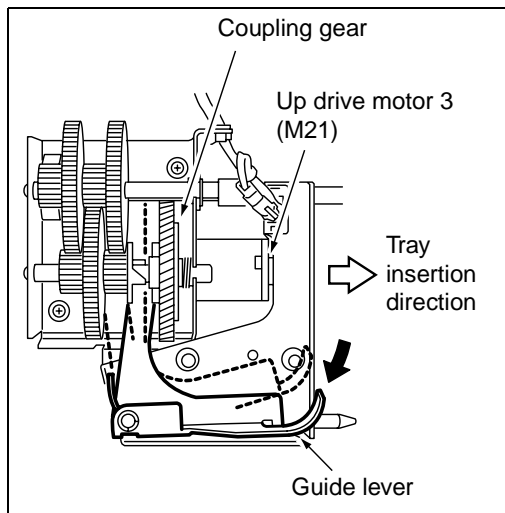
[2] Mechanisms

	Mechanism	Method
*1	Paper lift-up	Up: Paper up/down plate driven by up/down wires Down: Falls down by its own weight
	Tray loading	Front loading
	Double feed prevention	Torque limiter
*2	1st paper feed	Paper feed roller Pick up solenoid 3 (SD10)
	No paper detection	Photosensor + Actuator
*3	Paper size detection (Universal)	Width: VR Length: Photosensor + Actuators (two)

- *1 Paper lift-up
- a) Hoisting of up/down plate
- The up/down plate is lifted up by up/down wires. When the paper tray is loaded, the up drive motor 3 (M21) rotates to wind the up/down wires around the drive pulleys and consequently the plate moves up. When the tray upper limit PS3 (PS22) detects the actuator of the plate that has moved up, the up drive motor 3 (M21) stops.

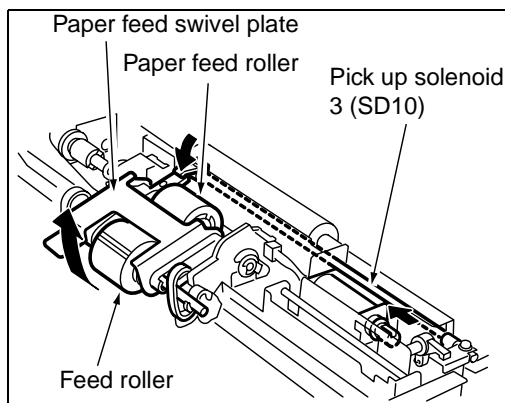
b) Lowering of up/down plate

When the paper feed tray is pulled out, the guide lever shown below is disengaged from the rail, thus releasing the coupling gear that transmits the drive force of the up drive motor 3 (M21) to the drive pulleys. Then, the up/down plate falls down mechanically by the weight of papers.



*2 1st paper feed

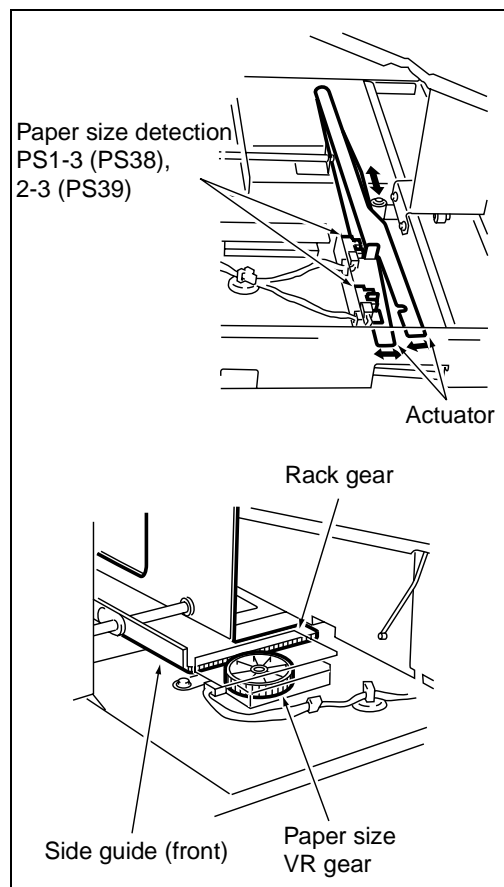
To keep constant contact pressure on the paper by the paper feed roller at the time of paper pick-up, the weight of the paper feed roller itself is used. The pick up solenoid 3 (SD10) moves the paper feed swivel plate down so that the paper feed roller mounted on the plate falls down to touch the paper as well. Then, the paper feed roller picks up a paper and feeds it toward the paper conveyance unit. The first paper feed solenoid moves the paper feed swivel plate down only when paper is to be fed. Otherwise, it releases contact.



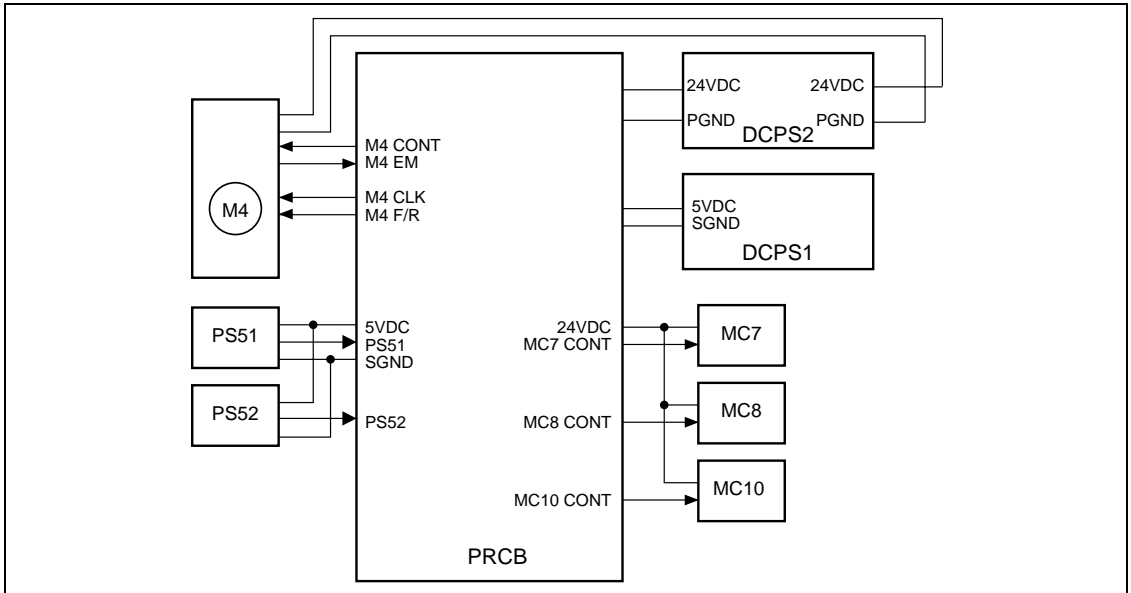
*1 Paper size detection

Length: The rear guide of the tray moves, causing the paper size detection actuator to move as well. As a result, the two paper size detection PS1-3 (PS38), 2-3 (PS39) turn ON and/or OFF. Thus, the paper size is automatically determined according to the combination of the ON/OFF states of these PSs.

Width: The side guide of the tray moves, causing the side guide (front) rack gear to turn the gear of the paper size detection VR3. Thus, the paper size is automatically determined according to the change in the resistance value of the VR.



[3] First Paper Feed Control



The 1st paper feed from tray 3 takes place as the result of the transmission of the drive force from M4 (paper feed) to each paper feed roller, via MC7 (feed MC3) and MC8 (pre-registration MC3). SD10 (pick up SD3) causes the roller to pick up paper. The above operations are controlled by the PRCB (printer control board). Related signals are PS51 (paper feed 3), and PS52 (paper pre-registration 3).

1. Operation

a. First paper feed timing (feed MC drive)

- (1) When printing of the first copy starts
Timing that is determined by the P counter from when copying starts.
- (2) When printing of the second copy starts
When PS51 turns OFF after the first paper feed detection.
- (3) OFF timing
After a specified count from turning ON of PS50.
*Changeable in 36 mode.

b. Feed timing (pre-registration clutch drive)

- (1) ON timing
First sheet: When a preset time interval has passed after turning ON of MC7.
Second sheet: When a preset time interval has passed after turning ON of MC1 (registration).
- (2) OFF timing
When PS19 is turned OFF.

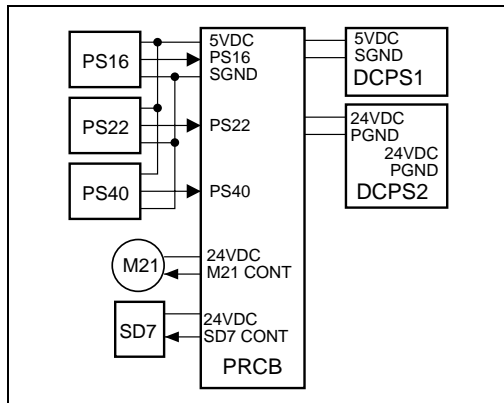
2. Signals

a. PRCB input signals

- (1) PS51 (PS51 to PRCB)
Paper passage detection signal.
[L]: Paper passed
[H]: Paper not passed
- (2) PS52 (PS52 to PRCB)
First paper feed paper detection signal.
[L]: Paper exists
[H]: Paper does not exist

b. PRCB output signals

- (1) MC7 CONT (PRCB to MC7)
MC7 drive control signal.
[L]: MC7 ON
[H]: MC7 OFF
- (2) MC8 CONT (PRCB to MC8)
MC8 drive control signal.
[L]: MC8 ON
[H]: MC8 OFF
- (3) SD10 CONT (PRCB to SD10)
SD10 drive control signal.
[L]: SD10 ON
[H]: SD10 OFF

[4] Paper Up Drive Control

Papers stacked in the tray are pushed up by transmitting the drive force of M21 (up drive 3) to the paper up/down plate in the tray via up/down wires. MC21 is controlled directly by PRCB (printer control board). The related signals are PS22 (tray upper limit 3) and PS40 (remaining paper detection 3). To prevent pull-out of tray during copying operation that cause paper jamming, a tray lock mechanism is implemented by PS16 (handle release 3) and SD7 (lock SD3).

1. Operation**a. Paper up drive control**

When tray 3 is loaded, M21 goes ON for a fixed time, raising the paper up/down plate in the tray. When PS22 detects the upper limit of paper as the paper up/down plate in the tray goes up, it goes ON and consequently M21 goes OFF, stopping raising the paper up/down plate. When PS22 goes OFF after a paper is fed, M21 goes ON again, moving the paper up/down plate upward. The paper up/down plate in the tray is lowered mechanically by its own weight.

b. Paper up drive timing**(1) ON timing**

M21 is turned ON when loading of a tray is detected (by shorting wires at both ends of the drawer connector) or when no paper is detected.

(2) OFF timing

M21 is turned OFF when PS22 is turned ON.

c. Remaining Paper Detection

The level of paper remaining in each tray is detected according to the time that M21 requires to lift up the paper up/down plate when the tray is set. This lift-up time (operation time of M21) is recorded in the PRCB. Subsequently, remaining paper is detected by the paper feed counter. The detected remaining paper level is displayed on the operation panel in 5 steps. PS40 is used to detect the remaining paper level when it drops below about 10%.

d. Tray lock control

When the tray handle is gripped, PS16 is turned ON. This signal then causes SD7 to go ON, releasing the lock.

2. Signals**a. PRCB input signals****(1) PS16 (PS16 to PRCB)**

Tray drawer handle detection signal.

[L]: Detected

[H]: Not detected

(2) PS22 (PS22 to PRCB)

Paper upper limit detection signal.

[L]: Not detected

[H]: Detected

(3) PS40 (PS40 to PRCB)

Remaining paper detection signal.

[L]: Detected

[H]: Not detected

b. PRCB output signals**(1) M21 CONT (PRCB to M21)**

M21 ON/OFF control signal.

[L]: M21 ON

[H]: M21 OFF

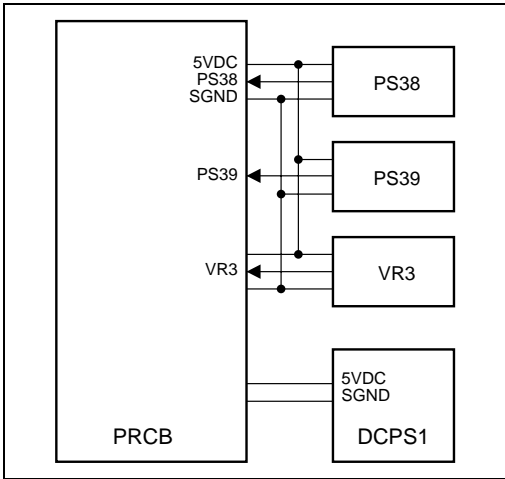
(2) SD7 CONT (PRCB to SD7)

SD7 drive control signal.

[L]: SD7 ON

[H]: SD7 OFF

[5] Paper Size Detection Control



The paper size in tray 3 is detected using PS38 (paper size 1-3), PS39 (paper size 2-3) and paper size detection VR3. Based on the detection signals, the PRCB (printer control board) judges the paper size.

1. Operation

The length of paper is detected using PS38 and PS39. A variable resistor (VR3) is installed at the bottom of the tray to detect the width of paper. The relationships between the switches and paper sizes (lengths) are as follows:

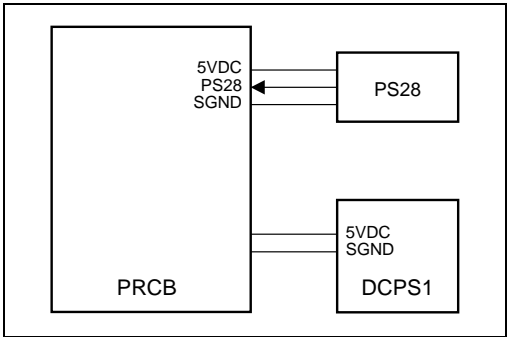
Paper size	8.5 x 11 or less	A4R to B5R	F4	8.5 x 14 or larger
Switch				
PS38	OFF	OFF	ON	ON
PS39	OFF	ON	ON	OFF

2. Signals

a. Input signals

- (1) PS38 (PS38 to PRCB)
Paper size detection switch ON/OFF signal.
- (2) PS39 (PS39 to PRCB)
Paper size detection switch ON/OFF signal.
- (3) VR3 (VR3 to PRCB)
Paper width detection signal.

[6] No Paper Detection Control



No paper in the tray is detected by PS28 (no paper 3) which is controlled by the PRCB (printer control board).

1. Operation

When the tray becomes empty, PS28 is turned ON, displaying a message on the LCD via the OB1 (operation board 1).

2. Signal

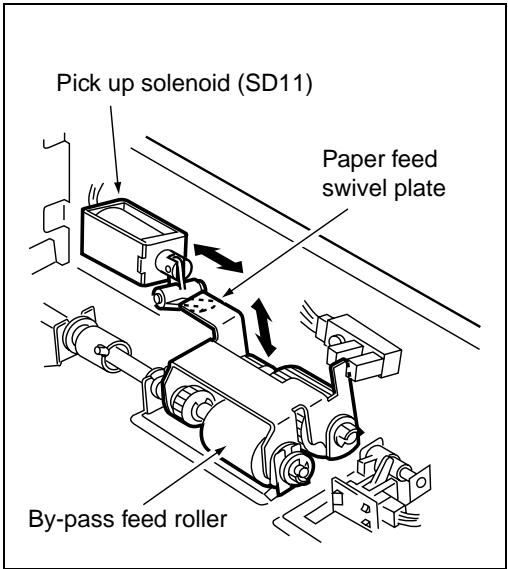
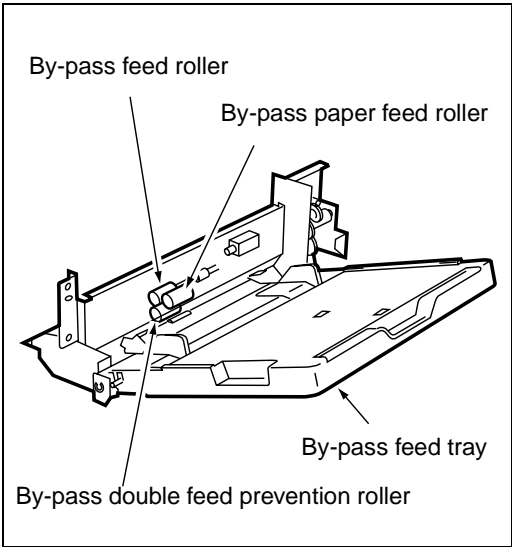
a. Input signals

- (1) PS28 (PS 28 to PRCB)
No paper detection signal.
[L]: Paper does not exist in tray
[H]: Paper exists in tray

Blank page

BY-PASS TRAY

[1] Composition

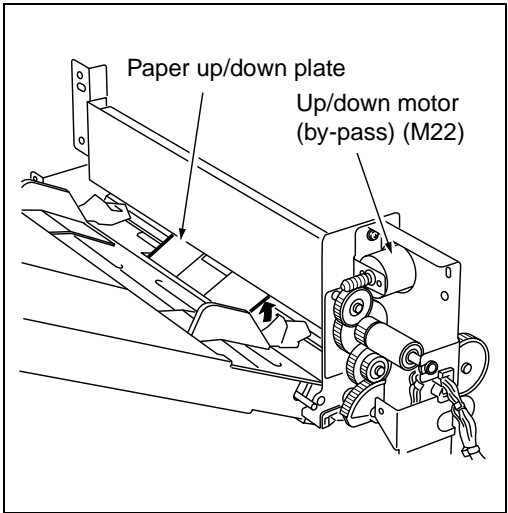


[2] Mechanisms

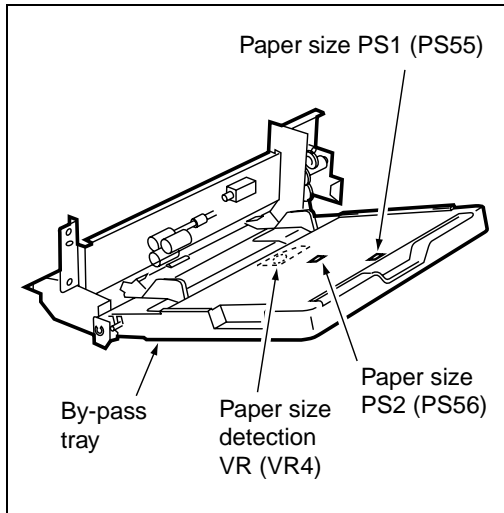
	Mechanism	Method
*1	First paper feed	Swivel roller Pick up solenoid (SD11)
*2	Paper lift-up	Paper up/down plate Up/down motor (M22) (by-pass tray)
	Double feed prevention	Torque limiter
	No paper detection	Photosensor
*3	Paper size detection	Paper size detection PS (PS55/PS56)

- *1 By-pass paper feed roller
To keep constant contact pressure on the paper by the paper feed roller at the time of paper pick-up, the weight of the paper feed roller itself is used. The pick up solenoid (SD11) moves the paper feed swivel plate down (when the roller is rotating) so that the paper feed roller mounted on the plate falls down to touch the paper as well. Then, the paper feed roller picks up a paper and feeds it toward the paper conveyance section. The first paper feed solenoid moves the paper feed swivel plate down only when paper is to be fed. Otherwise, it releases contact.

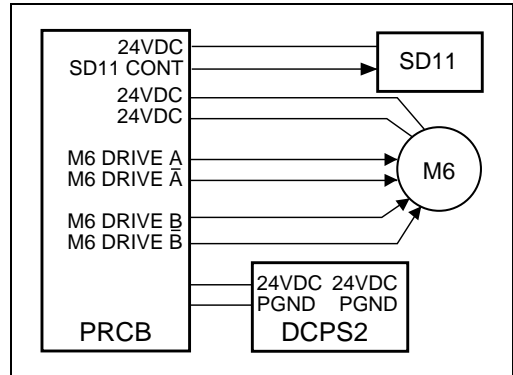
- *2 Paper lift-up
When paper is set in the bypass tray, the up/down motor (by-pass) (M22) drives the paper up/down plate via gears. Paper is automatically pushed up to the paper feed position.



- *3 Paper size detection
The paper size is automatically detected by the following three sensors:
- Lateral: Paper size detection VR (VR4)
 - Longitudinal: Paper size PS 1/2 (PS55/PS56)



[3] First Paper Feed Control



The 1st paper feed from the by-pass tray takes place as the result of the transmission of the drive force from M6 (loop roller) to the paper feed roller. SD11 (pick up (by-pass tray)) moves up and releases the paper feed roller contacting to the paper after the roller picked up and fed the first paper to the feed roller side to facilitate paper feeding.

The above operations are controlled by the PRCB (printer control board).

1. Operation

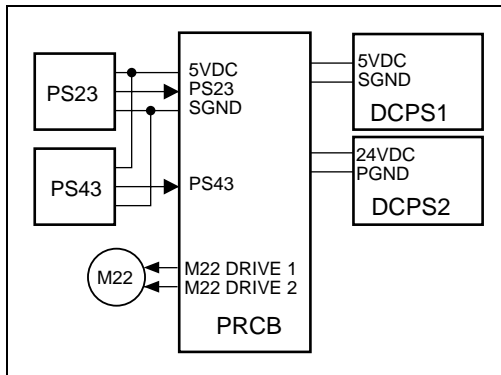
a. First paper feed operation timing

Controlled at M6 ON/OFF timings and by M6 rotation direction.

2. Signals

a. Output signals

- (1) SD11 (PRCB to SD11)
SD11 drive control signal (bypass tray).
[L]: SD11 ON
[H]: SD11 OFF
- (2) M6 DRIVE A, \bar{A} (PRCB to M6)
M6 A-phase drive control pulse signal.
- (3) M6 DRIVE B, \bar{B} (PRCB to M6)
M6 B-phase drive control pulse signal.

[4] Paper Up/down Control

By-pass tray paper is moved up and down by transmitting the drive force of M22 (up/down (by-pass)). M22 is controlled directly by PRCB (printer control board). Related signals are PS23 (tray upper limit (by-pass tray)) and PS43 (tray lower limit (by-pass tray)).

1. Operation**a. Paper up/down control**

M22 is turned ON a fixed time to push up paper. When PS23 detects the upper limit of paper and is turned ON, M22 is turned OFF to stop pushing up paper. When paper is fed and PS23 is turned OFF, M22 turns ON once more to maintain the upper limit position of the paper.

b. Paper up timing**(1) ON timing**

At start of copying

(2) OFF timing

M22 is turned OFF when PS23 is turned ON.

c. Paper down timing**(1) ON timing**

Turns ON when there is no paper or when paper jamming takes place.

(2) OFF timing

M22 is turned OFF when PS43 is turned ON.

2. Signals**a. Input signals****(1) PS23 (PS23 to PRCB)**

Paper upper limit position detection signal (by-pass tray).

[L]: Detected

[H]: Not detected

(2) PS43 (PS43 to PRCB)

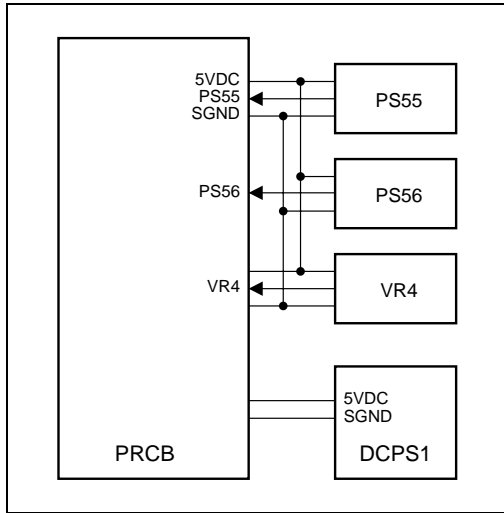
Paper lower limit position detection signal (by-pass tray).

[L]: Detected

[H]: Not detected

b. Output signal**(1) M22 DRIVE 1, 2 (PRCB to M22)**

M22 drive control signal.

[5] Paper Size Detection Control

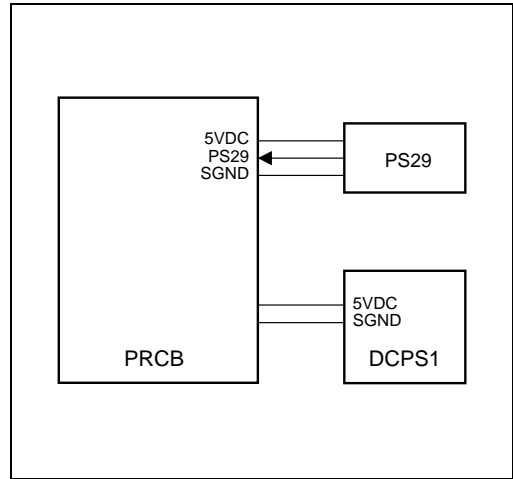
The size of paper in the by-pass tray is detected by PS55 (paper size 1 (by-pass tray)), PS56 (paper size 2 (by-pass tray)), and VR4 (paper size detection (by-pass tray)). Based on the detection signals, the PRCB (printer control board) judges the paper size.

1. Operation

The length of paper is detected using PS55 and PS56. The by-pass tray is provided with a variable resistor (VR4) interlocked with the guide position to judge the width of paper according to the change in the resistance value.

2. Signals**a. Input signals**

- (1) PS55 (PS55 to PRCB)
Paper size detection switch ON/OFF signal.
- (2) PS56 (PS56 to PRCB)
Paper size detection switch ON/OFF signal.
- (3) VR4 (VR4 to PRCB)
Paper width detection signal.

[6] No Paper Detection Control

No paper in the tray is detected by PS29 (no paper (by-pass tray)) which is controlled by the PRCB (printer control board).

1. Operation

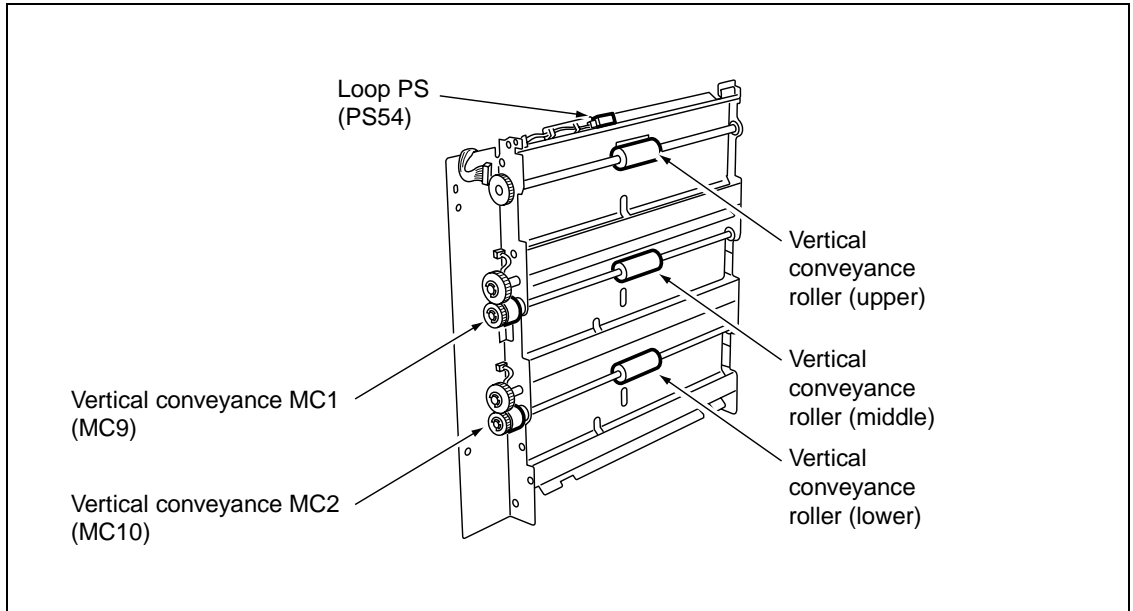
When the tray becomes empty, PS29 is turned ON, displaying a message on the LCD via the OB1 (operation board 1).

2. Signals**a. Input signals**

- (1) PS29 (PS29 to PRCB)
No tray paper detection signal.
[L]: Paper does not exist in tray
[H]: Paper exists in tray

VERTICAL PAPER CONVEYANCE SECTION

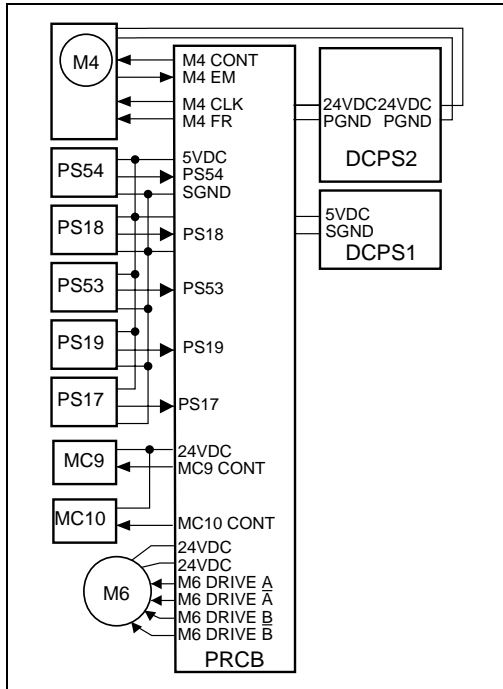
[1] Composition



[2] Mechanisms

Mechanism	Method
Paper conveyance	Rollers
Conveyance drive	Vertical conveyance roller (upper): Loop roller motor (M6) Vertical conveyance roller (middle): Paper feed motor (M4) Vertical conveyance roller (lower): Paper feed motor (M4)

[3] Vertical Paper Conveyance Control



In the vertical paper conveyance section, paper is fed vertically by transmitting the drive force of M4 (paper feed) to the vertical conveyance middle and lower rollers via MC9 (vertical conveyance MC1) and MC10 (vertical conveyance MC2). The upper roller is driven by M6 (loop roller). Each of these is controlled directly by PRCB (printer control board). Related signals are PS18 (vertical conveyance 1), PS53 (vertical conveyance 2), PS19 (vertical conveyance 3), PS54 (loop), and PS17 (open/close detection).

When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motor, stopping M6.

1. Operation

Paper supplied from one of trays 1-3 is then fed to the second paper feed unit by the M4 and M6's drive force transmitted via MC9 and MC10. Since the linear velocity of the vertical conveyance middle and lower rollers driven by M4 is kept constant at high speed rotation, the vertical conveyance middle and lower rollers are stopped by turning off MC9 and MC10 while paper is fed by the registration roller at low speed. At this point the upper roller operates at low speed. In trays 2 and 3, the first paper feed operation starts

earlier than the second paper feed operation starts. Accordingly, the paper condition in the second paper feed section is detected by PS53 to turn OFF MC9 and MC10, stopping the conveyance temporarily.

2. Signals

a. PRCB input signals

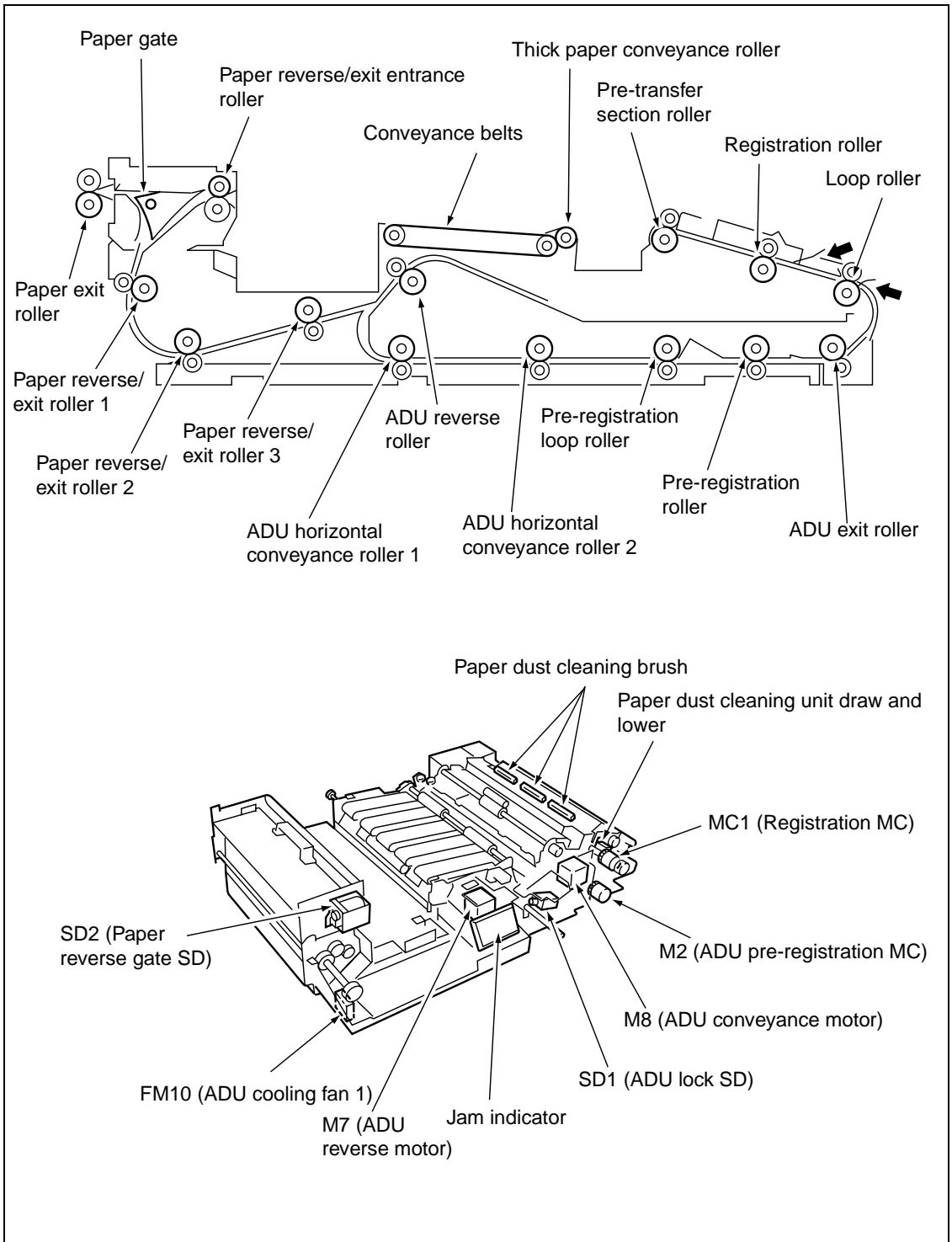
- (1) PS17 (PS17 to PRCB)
Vertical conveyance section opening/closing detection signal.
[L]: Open
[H]: Closed
- (2) PS18 (PS18 to PRCB)
Tray 1 exit paper passage detection signal (for jam detection).
[L]: Paper is detected
[H]: Paper is not detected
- (3) PS19 (PS19 to PRCB)
Tray 3 exit paper passage detection signal (for jam detection).
[L]: Paper is detected
[H]: Paper is not detected
- (4) PS53 (PS53 to PRCB)
Tray 2 exit paper passage detection signal (for timing detection).
[L]: Paper is detected
[H]: Paper is not detected
- (5) PS54 (PS54 to PRCB)
M6 control timing detection signal.
[L]: Paper is detected
[H]: Paper is not detected
- (6) M4 EM (M4 to PRCB)
M4 fault detection signal.
[L]: Abnormal
[H]: Normal

b. PRCB output signals

- (1) M4 CONT (PRCB to M4)
M4 drive control signal.
[L]: M4 ON
[H]: 4 OFF
- (2) MC9 CONT (PRCB to MC9)
MC9 drive control signal.
[L]: MC9 ON
[H]: MC9 OFF
- (3) MC10 CONT (PRCB to MC10)
MC10 drive control signal.
[L]: MC10 ON
[H]: MC10 OFF

ADU

[1] Composition



[2] Mechanisms

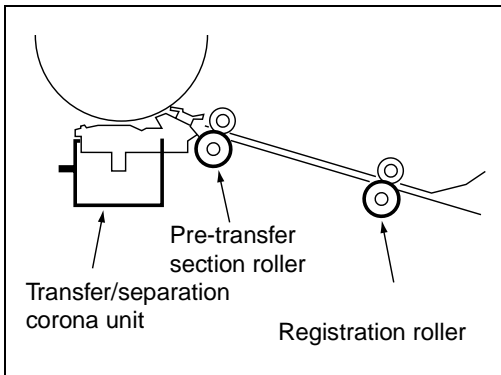
	Mechanism	Method
	Second paper feed paper loop	Loop roller
*1	Second paper feed mis-centering correction	Write information is corrected according to the information detected by PS1 (paper mis-centering PS)
*2	Second paper feed auxiliary mechanism	Pre-transfer section roller
	Second paper feed paper conveyance drive	Registration motor (M12) drive
*3	Second paper feed jam removal mechanism	Jam removal by opening the paper registration and loop section Jam removal by opening the pre-transfer section Registration roller rotation knob
	Conveyance section paper conveyance	Conveyance belts (5)
*4	Conveyance section thick paper conveyance auxiliary mechanism	Thick paper conveyance roller
*5	Conveyance section paper suction mechanism	Developing suction fan (FM2) + Suction duct
*6	Conveyance section jam removal mechanism	Conveyance unit opening/closing
*7	Paper reverse/exit section paper path selection	Paper gate Paper reverse gate solenoid (SD2) drive
	Paper reverse/exit section paper conveyance	Paper reverse/exit section entrance roller (1) Paper reverse/exit rollers (3)
	Paper reverse/exit section paper conveyance drive	Paper reverse/exit motor (M5) drive
*8	Paper reverse/exit section jam removal mechanism	Jam removal by opening the paper reverse/exit section jam access guide plate Jam removal by opening the paper reverse/exit section Paper reverse/exit roller rotation knob
*9	ADU paper feed	Nonstack paper feed
	ADU reversed paper conveyance path selection	Automatically guided according to paper guide shape
	ADU paper conveyance	ADU reversal roller (1) ADU horizontal transport rollers (2)
*10	ADU pre-registration mechanism	Pre-registration roller Pre-registration loop roller
	ADU paper ejection	ADU exit roller
	ADU paper conveyance drive	Loop roller motor (M6), ADU reverse motor (M7), ADU conveyance motor (M8), Transfer motor (M9), Registration motor (M12)
*11	ADU carriage jam removal mechanism	Jam removal by opening the open/close guide A Jam removal by opening the open/close guide B
*12	ADU carriage jam indication	Jam indication board

***1 Second paper feed paper mis-centering correction**

PS1 (paper mis-centering) is mounted at the exit of the registration roller to detect mis-centering or inclination of paper fed from the second paper feed unit. The image processor uses the mis-centering information detected by PS1 to correct the image write position, thus shifting or rotating the image write position on the mis-centered or inclined copy paper in order to match the document (scanned image) position with the copy paper position.

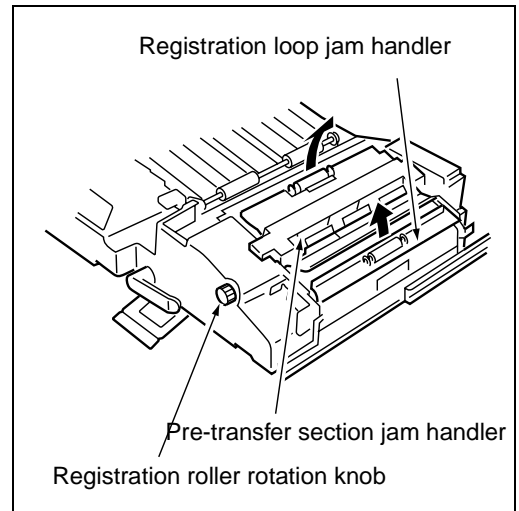
***2 Second paper feed auxiliary mechanism**

The distance between the registration roller and the transfer and separation corona unit of this machine is made long to ensure image position correction operation. To assist paper conveyance between the registration roller and the image transfer and separation corona unit, a pre-transfer roller is provided just before the transfer and separation corona unit.



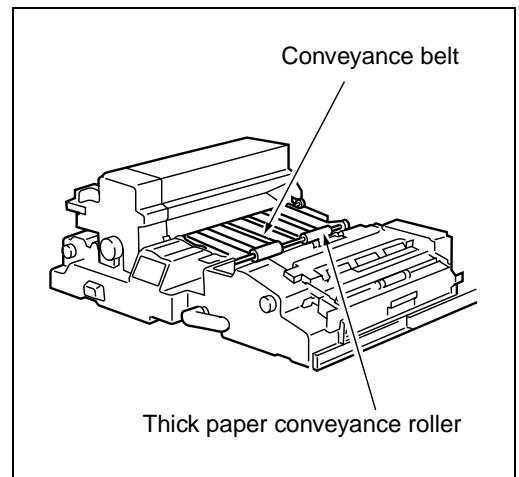
***3 Second paper feed unit jam removal mechanism**

The registration roller is sandwiched between the registration loop jam removal section and the pre-transfer jam removal section. Jammed paper can be removed by opening the jam removal section and turning the registration roller rotation knob.



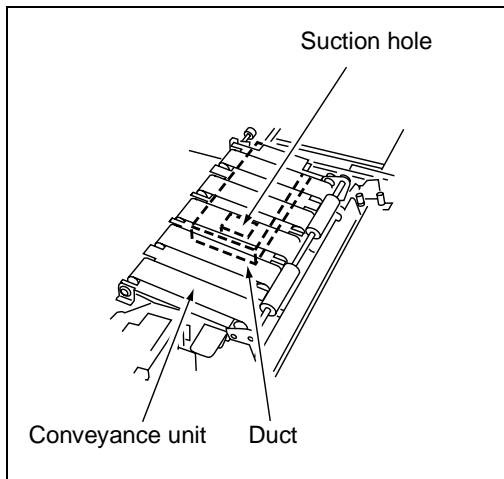
***4 Paper conveyance unit thick paper conveyance auxiliary mechanism**

To facilitate feeding the thick paper fed from the transfer and separation corona unit, thick paper conveyance rollers are provided. The installation positions of thick paper conveyance rollers are fixed and they are also used to assist conveyance of paper other than thick paper.

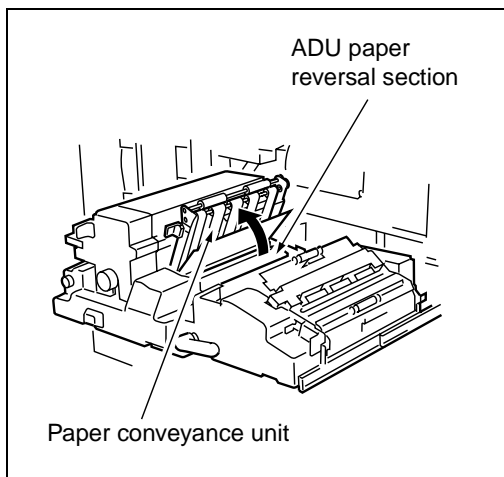


***5 Paper conveyance unit paper suction mechanism**

A paper suction duct is provided in the middle of the paper conveyance and leads to the developing suction fan (FM2) installed at the back of the main unit. To improve the paper transportability in the paper conveyance unit, the paper suction fan and duct are used to suck the paper passing through the paper conveyance unit.



***6 Paper conveyance unit jam removal mechanism**
When a paper jam occurs in the paper reversal section in the ADU, the jammed paper can be removed by opening the paper conveyance unit.



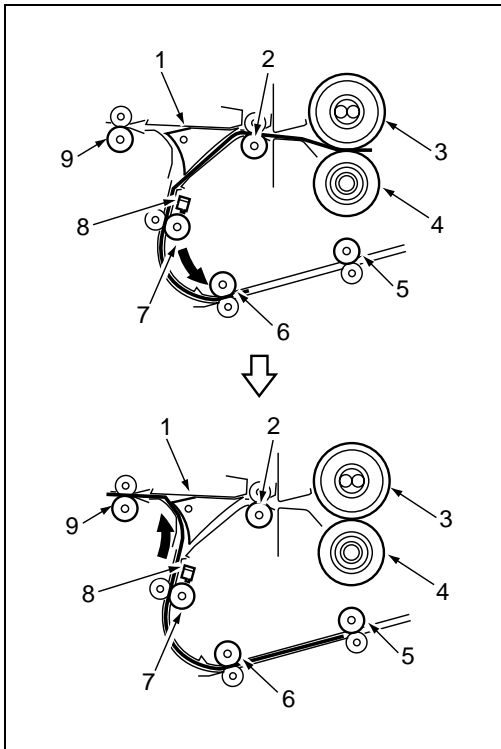
***7 Paper path selection to paper reverse/exit section**

The paper gate determines whether the paper fed out from the fixing unit is to be ejected straight, or reversed and ejected. The paper gate is operated by the ON/OFF operation of SD2 (paper reverse gate SD).

a) Paper reverse/exit operation

Normally, the paper gate opens when SD2 is turned OFF. The paper fed by the paper reverse/exit inlet roller is fed, through the path under paper gate, into the paper reverse/exit section. This paper is then fed to the ADU paper conveyance unit by paper reverse/exit rollers 1-3 (and paper reverse roller, when feeding a large size paper).

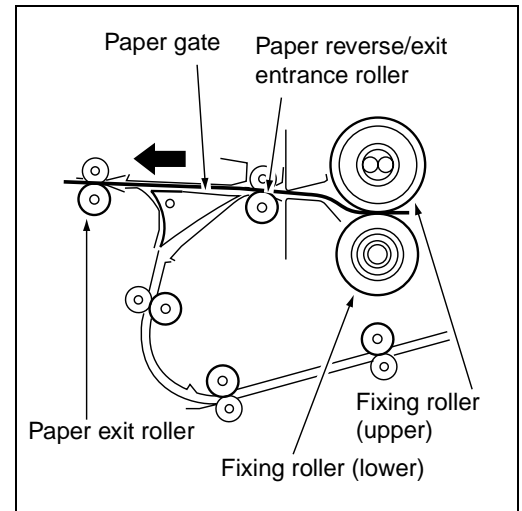
However, if PS57 (paper reverse) detects the trailing edge of the paper and consequently turns OFF, the rollers start rotating in the opposite direction, feeding the paper back to the paper gate. The fed back paper is fed to the paper exit roller, not to the paper reverse/exit entrance roller side, because of the shape of the paper gate. Thus, the paper is ejected to the paper exit with the print side down.



1	Paper gate
2	Paper reverse/exit entrance roller
3	Fixing roller (upper)
4	Fixing roller (lower)
5	Paper reverse/exit roller 3
6	Paper reverse/exit roller 2
7	Paper reverse/exit roller 1
8	PS57 (paper reverse)
9	Paper exit roller

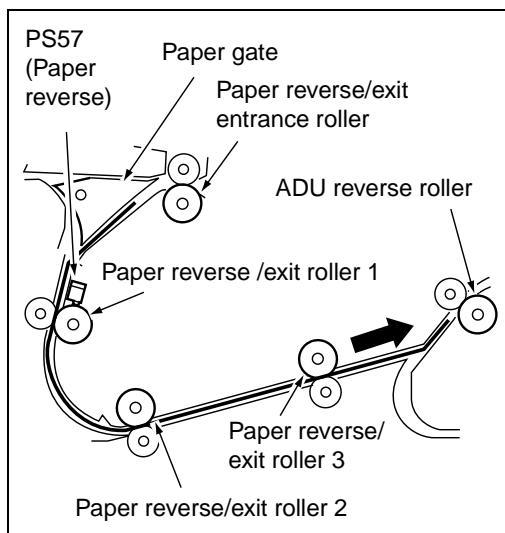
b) Straight ejection

When paper is ejected straight, SD2 is turned ON to close the paper gate. The paper fed by the paper reverse/exit entrance roller is fed through the path over the paper gate because this gate is closed, then fed to the paper exit roller. Thus, the paper is ejected to the paper exit with the print side up.



c) ADU paper conveyance

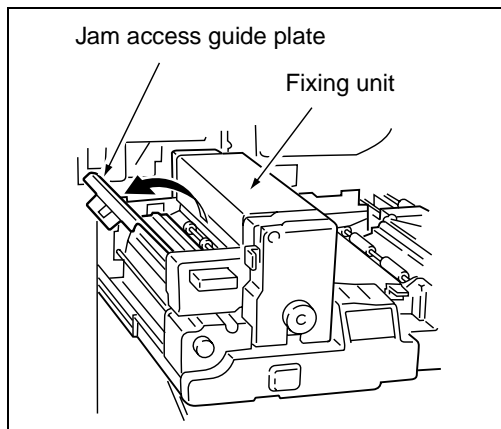
In the two-sided copy mode, the paper finished with printing on the front side is fed, through the path under the paper gate, into the paper reverse/exit section just like paper reverse/exit operation. Then, the paper is fed to the ADU unit by paper reverse and eject rollers 1-3. These rollers do not rotate in the opposite direction even when PS57 detects the trailing edge of the paper, allowing the paper to be fed to the ADU paper reversal roller.



*8 Paper reverse/exit section jam removal mechanism

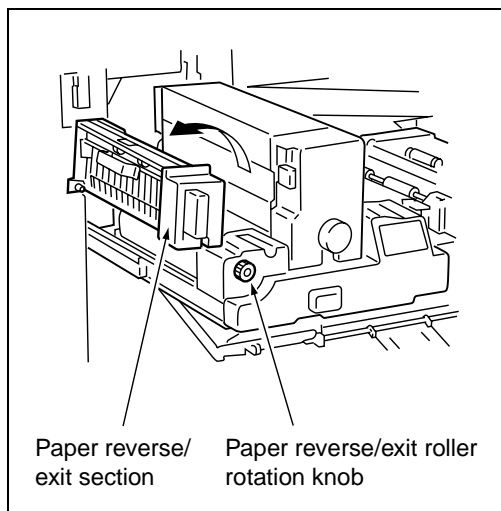
a) Jam access guide plate

When a jam occurs in the paper gate section, the jammed paper can be removed by opening the paper reverse/exit section jam access guide plate.



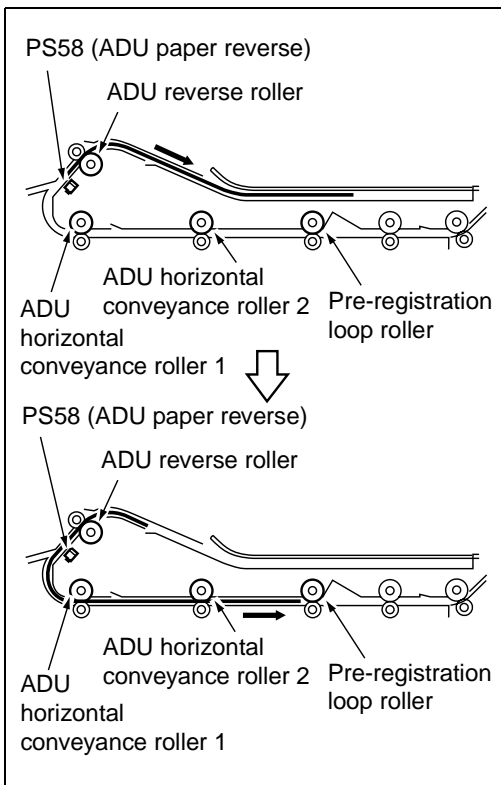
b) Jam removal from the paper reverse/exit section by paper reverse/exit roller rotation knob

When a jam occurs in the paper reverse/exit section, the jammed paper can be removed by opening the paper reverse/exit section and rotating the paper reverse/exit roller rotation knob.



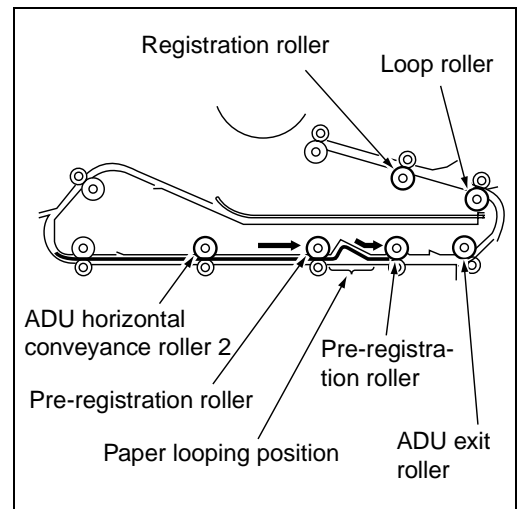
*9 Nonstack paper feed mechanism

In the two-sided copy mode, the paper fed from the paper reverse/exit section is conveyed to the ADU section by the ADU reverse roller. When PS58 (ADU paper reverse) detects the trailing edge of paper and consequently turns OFF, the ADU reverse roller starts rotating in the opposite direction, feeding the paper backward. The fed back paper is conveyanced to the ADU horizontal conveyance roller, not the paper reverse/exit roller 3, because of the shape of the conveyance path plate. Thus, paper is reversed and fed to the ADU exit, sheet by sheet, without being stacked.



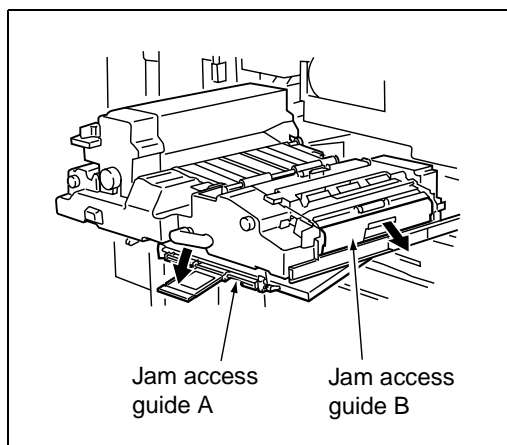
*10 ADU pre-registration mechanism

In the ADU, paper is looped by the pre-registration roller and pre-registration loop roller to correct paper inclination in the second paper feed unit. The pre-registration roller is controlled by the ON/OFF operation of MC2 (ADU pre-registration MC). The pre-registration loop roller feeds paper at a constant speed with the pre-registration roller stopped by the OFF operation of MC2, forming a paper loop between these two rollers. As a result, paper inclination is corrected. When MC2 is turned ON, the pre-registration roller starts rotating to feed paper to the second paper feed section. Note that the pre-registration loop roller is rotating at a constant speed and it does not stop after formation of a paper loop is complete. Therefore, the loop size depends on the time from turning ON to OFF of MC2.



*11 ADU section jam removal mechanism

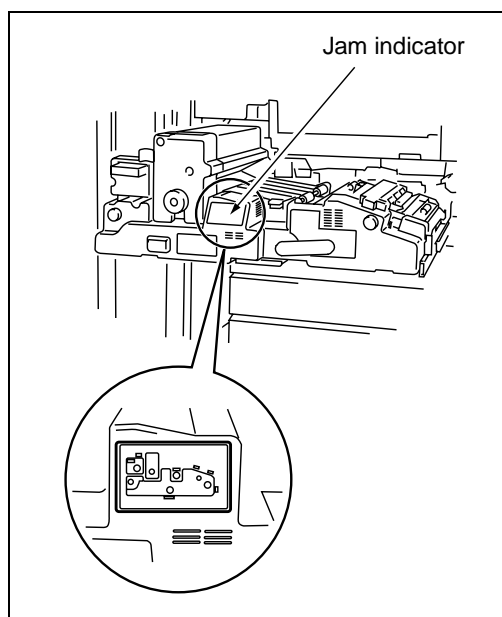
When a jam occurs in the ADU horizontal conveyance section, the jammed paper can be removed by opening the ADU horizontal conveyance unit jam access guide A. The paper jammed at the ADU exit can be removed by opening the ADU exit section jam access guide B.



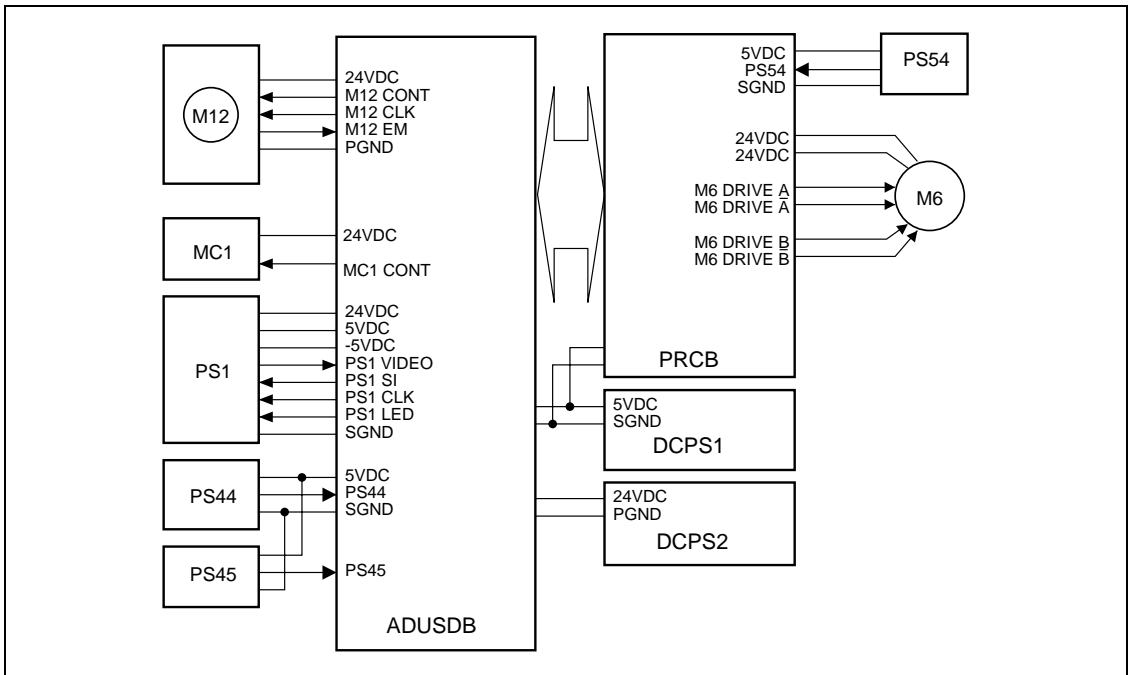
*12 ADU jam indication

The ADU has a jam indicator that indicates the location of the jam (ADU, second paper feed unit, conveyance unit, or fixing unit). All units other than the fixing unit are powered even after the ADU is drawn out of the main unit, allowing the ADU to indicate the jam location.

⚠ Warning: The interlock that is turned OFF when the front right or left door is opened/closed, should never be turned ON forcibly with the ADU drawn out.



[3] Loop/Second Paper Feed Control



The paper fed from one of trays 1-3 is fed to the second paper feed unit. The second paper feed takes place as the result of the transmission of the drive force from M12 (registration) to the second paper feed roller via MC1 (registration MC). The second paper feed unit is preceded by the loop roller, and this conveyance unit is also used for the paper fed from the ADU or LCT excluding the paper from the bypass tray. The loop roller is driven by M6 (loop roller).

The above parts are controlled by the PRCB (printer control board) via the DCDB (DC drive board) and ADUSDB (ADU stand drive board).

Related signals are PS44 (registration), PS45 (leading edge detection), and PS54 (loop detection). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motors, stopping M6 and M12.

1. Operation

a. Loop control

The paper fed from each tray is fed to the second paper feed roller by the loop roller. When PS44 is turned ON, the paper is decelerated and stopped temporarily to form a loop. After a lapse of specified time, MC1 is turned ON to transmit the drive

force of M12 to the second paper feed roller, thus feeding the paper to the transfer/separation section. When the second paper feed starts, the loop roller feeds the paper at the low linear velocity which is the same as that of the second paper feed roller.

b. Second paper feed control

After formation of a loop is completed, MC1 is turned ON to transmit the drive force of M12 to the second paper feed roller, starting the second paper feed.

c. Mis-centering detection control

Mis-centering of the paper fed from each tray is detected by PS1 (paper mis-centering) and it is corrected at the time of image write.

A contact sensor is used as PS1. The paper edge position is detected by mis-centering sensors. Based on the edge position information, the image write position is shifted to correct mis-centering. PS1 operates in the specified interval after PS45 is turned ON.

2. Signals

a. PRCB input signals

- (1) PS54 (PS54 to PRCB)
Loop formation reference timing detection signal.
The leading edge or trailing edge of paper is detected.
[L]: Paper exists
[H]: Paper does not exist

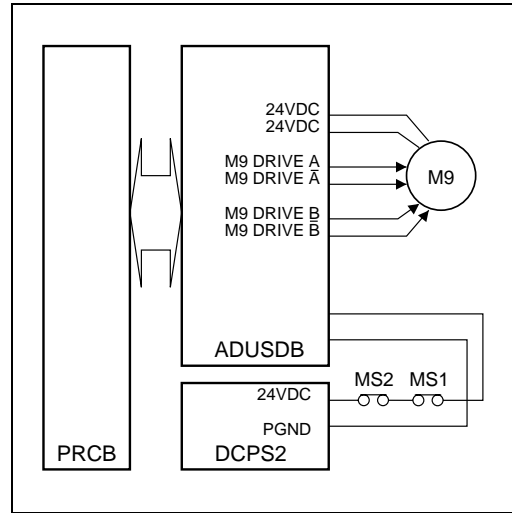
b. ADUSDB input signal

- (1) M12 EM (M12 to ADUSDB to PRCB)
M12 fault detection signal.
[L]: Normal
[H]: Abnormal
- (2) PS1 VIDEO (PS1 to ADUSDB to PRCB)
PS1 sensor output signal.
- (3) PS44 (PS44 to ADUSDB to PRCB)
Second paper feed reference timing detection signal.
[L]: Paper exists
[H]: Paper does not exist
- (4) PS45 (PS45 to ADUSDB to PRCB)
Paper leading edge detection signal (reference timing for various control operations)
[L]: Paper exists
[H]: Paper does not exist

c. ADUSDB output signals

- (1) M12 CONT (ADUSDB to M12)
M12 drive control signal.
[L]: M12 ON
[H]: M12 OFF
- (2) M12 CLK (ADUSDB to M12)
M12 clock signal.
- (3) MC1 CONT (ADUSDB to MC1)
MC1 drive control signal.
[L]: MC1 ON
[H]: MC1 OFF
- (4) PS1 SI (ADUSDB to PS1)
PS1 start pulse.
- (5) PS1 CLK (ADUSDB to PS1)
PS1 drive clock signal.
- (6) PS1 LED (ADUSDB to PS1)
PS1 LED control signal.

[4] Paper Conveyance Control



Conveyance of the paper fed from the second paper feed unit is controlled by the pre-transfer roller driven by M9 (transfer). M9 is controlled by the PRCB (printer control board) via the ADUSDB (ADU stand drive board). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motor, stopping M9.

1. Operation

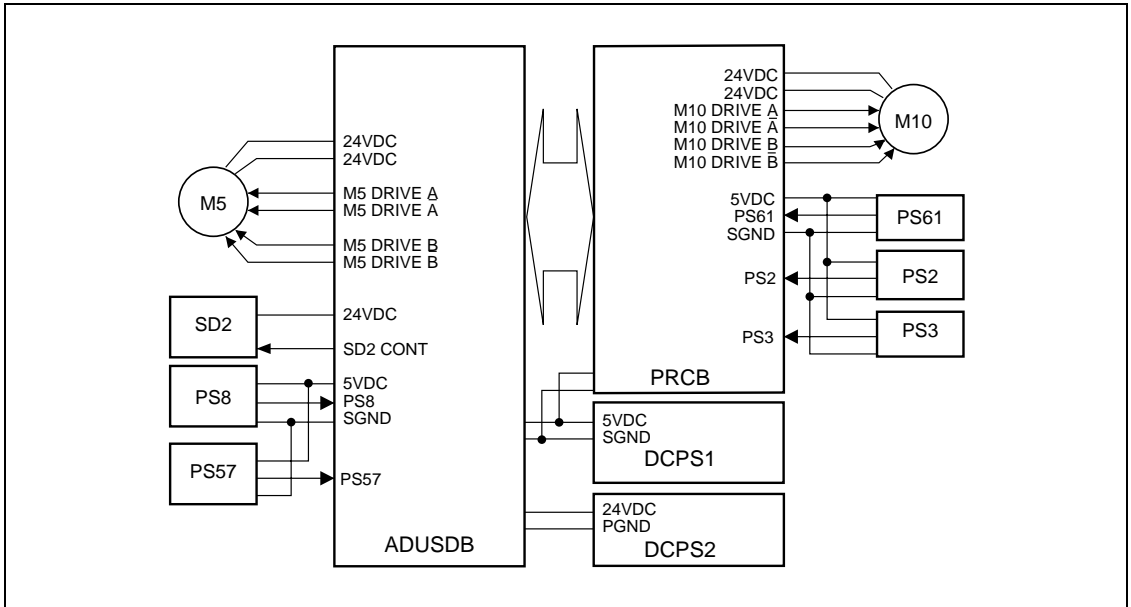
A 24V stepping motor is used for M9 in order to drive constantly at low speed.

2. Signals

a. Output signals

- (1) M9 DRIVE A, \bar{A} (M9 to ADUSDB)
M9 A-phase drive control pulse signal.
- (2) M9 DRIVE B, \bar{B} (M9 to ADUSDB)
M9 B-phase drive control pulse signal.

[5] Paper Reverse and Exit Control



The paper fed from the fixing unit is fed, through the paper reverse and conveyance section, to the exit tray or ADU. The paper reverse gate is driven by SD2 (paper reverse gate). The paper reverse and exit roller is driven by M5 (paper reverse/exit), and the paper exit roller is driven by M10 (paper exit).

Related signals are PS58 (ADU paper reverse), PS57 (paper reverse), PS61 (paper exit), PS2 (fixing exit), and PS3 (fixing jam). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motors, stopping M5 and M10.

1. Operation

a. Paper reverse gate control

The paper reverse gate is driven by SD2. Normally, the paper reverse gate is opened and guides the paper to the reversal unit. SD2 is turned ON to close the gate when ejecting paper straight.

b. M5 (paper reverse/exit) control

(1) Straight paper exit

When paper ejected straight, the paper reverse gate is closed with SD2 turned ON. Accordingly, paper is ejected straight at low speed rotation.

(2) Paper reverse and exit

a) The paper fed to the paper reverse and exit section is fed to the conveyance path in the paper reverse and exit section through the paper reverse gate opened by the OFF operation of SD2.

- b) Linear velocity is changed to high speed when the trailing edge of the paper conveyed at low speed by M5 passes the nip of the fixing roller. Then M5 rotates backward at high speed and the paper is conveyed to the paper exit roller after a specified interval since the trailing edge of the paper turns OFF PS57.
- (3) ADU conveyance
 - a) When SD2 is turned OFF, the paper reverse gate opens to feed paper to the conveyance path in the paper reverse and exit section just like paper reverse and exit operation.
 - b) Linear velocity is changed to high speed and conveys the paper when the trailing edge of the paper conveyed at low speed passes the fixing nip.
 - c) Then rotates at high speed by M7 and draws the paper into the ADU reversal unit.
- c. **M10 (paper exit) control**
 M10 rotates at low speed after a specified interval since the start button is turned ON. During reversal paper exit, the paper reversed by M5 is ejected. During this time, linear velocity is reduced from high speed to low speed when PS57 is turned OFF by the trailing edge of the paper. (Model equipped with FNS keeps ejecting at high speed.) Paper is conveyed at low speed during straight paper exit.

2. Signals

a. Input signals

- (1) PS2 (PS2 to PRCB)
 Detection of paper passage at fixing unit exit.
 [L]: Paper exists
 [H]: Paper does not exist
- (2) PS3 (PS3 to PRCB)
 Detection of jam in fixing unit.
 [L]: Paper exists. (Jam is detected.)
 [H]: Paper does not exist. (Jam is not detected.)
- (3) PS61 (PS61 to PRCB)
 Detection of paper passage in ejection section.
 [L]: Paper exists
 [H]: Paper does not exist
- (4) PS8, SIG (PS8 to ADUSB to PRCB)
 Detection of paper passage in reversal/conveyance section.
 [L]: Paper exists
 [H]: Paper does not exist

- (5) PS57 (PS57 to ADUSB to PRCB)
 Reverse and eject control reference timing signal.

The leading edge or trailing edge of paper is detected.

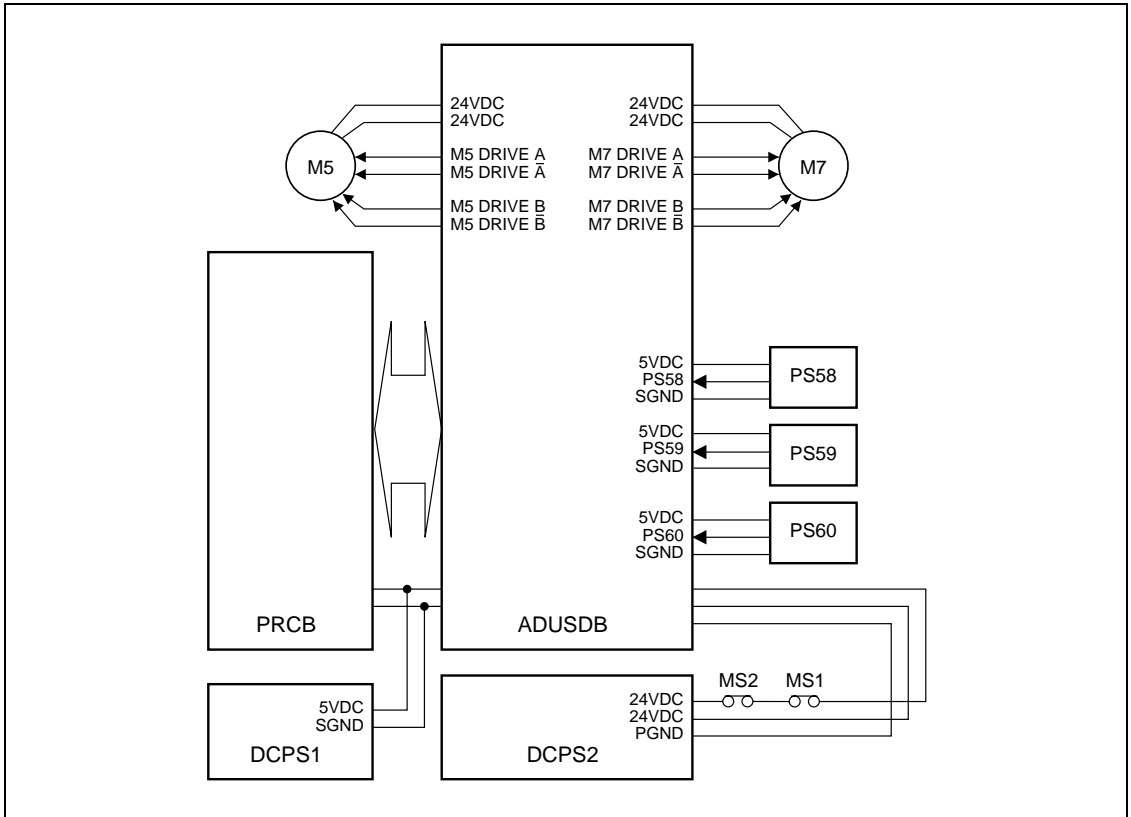
[L]: Paper exists

[H]: Paper does not exist

b. Output signals

- (1) M10 DRIVE A, \bar{A} (PRCB to $\bar{M}10$)
 M10 A-phase drive control clock signal.
- (2) M10 DRIVE B, \bar{B} (PRCB to $\bar{M}10$)
 M10 B-phase drive control clock signal.
- (3) M5 DRIVE A, \bar{A} (ADUSDB to M5)
 M5 A-phase drive control clock signal.
- (4) M5 DRIVE B, \bar{B} (ADUSDB to M5)
 M5 B-phase drive control clock signal.

[6] ADU Paper Feed/Reversal Control



The paper fed from the paper reverse and eject section is fed to the ADU by M5 (paper reverse/exit). In the ADU, paper is reversed by transmitting the drive force of M7 (ADU reverse) to the paper reverse roller. M5 and M7 are controlled by the PRCB (printer control board) via the ADUSDB (ADU stand drive board). Related signals are PS58 (ADU paper reverse), PS59 (ADU deceleration), and PS60 (ADU pre-registration). When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motors, stopping M5 and M7.

1. Operation

a. ADU paper feed control

The paper fed from the paper reverse and exit section by the drive force of M5 is then fed to the ADU paper reversal section.

b. ADU paper reversal control

When paper is fed to the ADU reversal section, M7 turns ON to feed paper continuously. When the trailing edge of paper passes through PS58, M7 starts rotating in the opposite direction, thus feeding paper to the ADU paper conveyance unit.

2. Signals

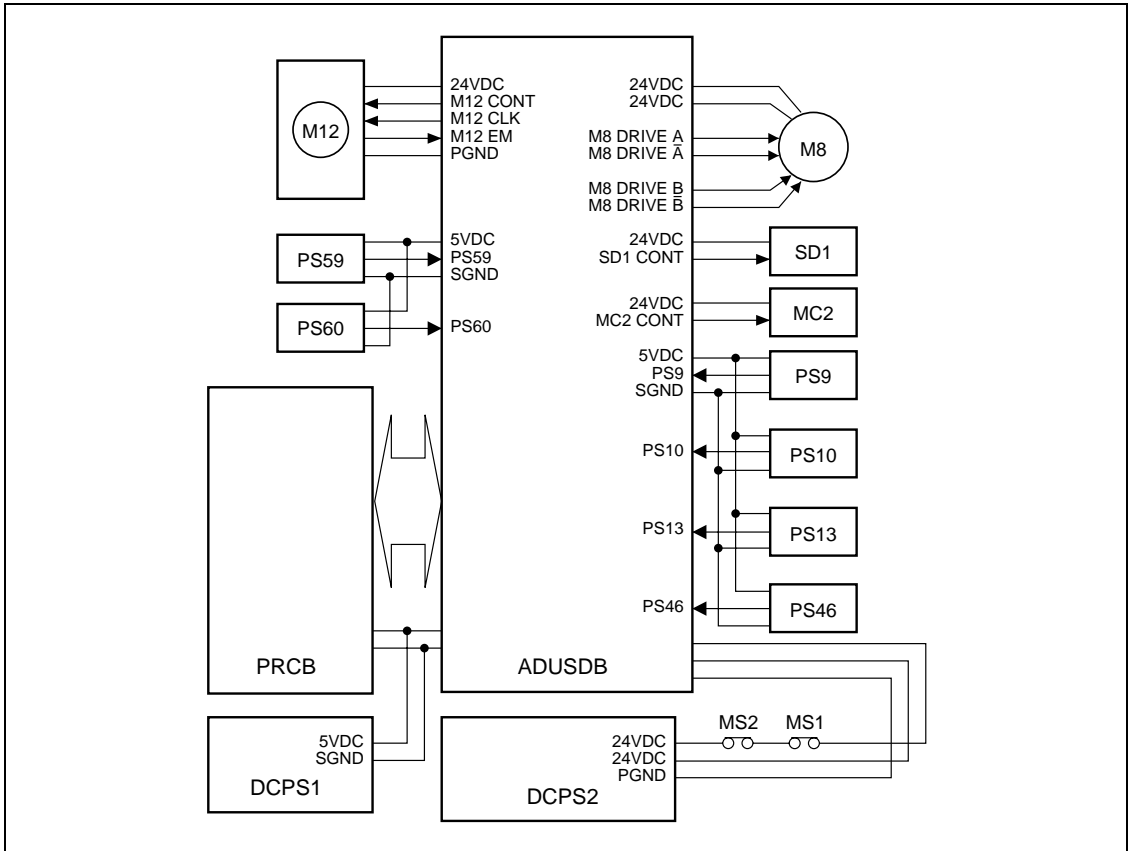
a. ADUSDB input signals

- (1) PS58 (PS58 to ADUSDB to PRCB)
Detection of paper passage in ADU paper reversal section.
M7 is rotated in the opposite direction or turned OFF with reference to this signal. The leading edge or trailing edge of paper is detected.
[L]: Paper exists
[H]: Paper does not exist
- (2) PS59 (PS59 to ADUSDB to PRCB)
Detection of reference timing for conveyance speed change.
The ADU paper conveyance speed change timing is detected by detecting passage of paper.
[L]: Paper exists
[H]: Paper does not exist
- (3) PS60 (PS60 to ADUSDB to PRCB)
Detection of loop timing as well as timing of paper conveyance to second paper feed section.
The leading edge or trailing edge of paper is detected by detecting passage of paper.
[L]: Paper exists
[H]: Paper does not exist

b. ADUSDB output signals

- (1) M7 DRIVE A, \bar{A} (ADUSDB to M7)
M7 A-phase drive control pulse signal.
- (2) M7 DRIVE B, \bar{B} (ADUSDB to M7)
M7 B-phase drive control pulse signal.

[7] ADU Paper Conveyance/Feed Control



The paper fed from the ADU paper reversal section is fed to the paper conveyance rollers by transmitting the drive force of M8 (ADU conveyance) to the paper conveyance rollers. Paper is then fed to the second paper feed section by the drive force of M12 (registration). Related signals are PS9 (ADU paper conveyance), PS10 (ADU handle release), PS13 (ADU no paper), PS46 (ADU exit), PS59 (ADU deceleration), and PS60 (ADU pre-registration). SD1 (ADU lock) is provided to lock the handle of the ADU.

When the front right or left door of this machine opens or closes, MS1 (interlock 1) or MS2 (interlock 2) operates to interrupt the DC power supply to the motors, stopping M8 and M12.

1. Operation

a. ADU conveyance control

Paper is fed at the high linear velocity until PS9 is turned ON at detection of the paper edge.

b. ADU feed control

When the leading edge of the paper conveyed at high speed by ADU conveyance turns PS59 ON, the M8 linear velocity is reduced to low speed and the paper is conveyed at low speed by M12 after a specified interval. Then when the leading edge of the paper turns PS60 ON, MC1 is turned OFF when MC2 (ADU pre-registration) is turned ON once more, and conveys at low speed after loop forming time has elapsed.

c. M8 (ADU conveyance) control

- (1) On timing
When M8 is turned on at start of copying.
- (2) OFF timing
When PS58 is turned OFF at passage of the last paper.

d. ADU lock control

The ADU handle is locked by SD1. PS10 detects the handle position to determine whether the handle is locked or released.

2. Signals**a. ADUSDB input signals**

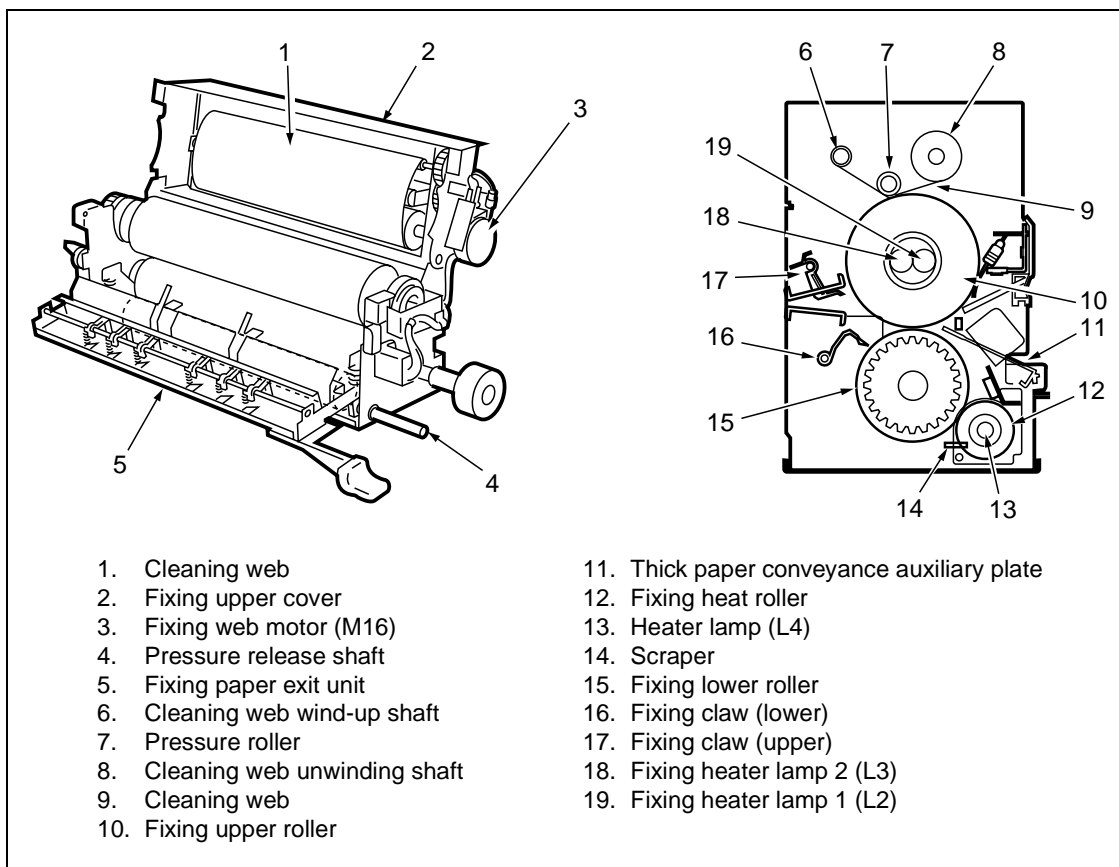
- (1) PS9 (PS9 to ADUSDB to PRCB)
Detection of paper passage in ADU section.
[L]: Paper exists
[H]: Paper does not exist
- (2) PS10 (PS10 to ADUSDB to PRCB)
Detection of ADU handle position.
[H]: Handle is released
- (3) PS13 (PS13 to ADUSDB to PRCB)
No paper detection.
[L]: Paper exists
[H]: Paper does not exist
- (4) PS46 (PS46 to ADUSDB to PRCB)
Detection of paper passage at ADU exit.
[L]: Paper exists
[H]: Paper does not exist

b. ADUSDB input signals

- (1) M8 DRIVE A, A (ADUSDB to M8)
M8 A-phase drive control clock signal.
- (2) M8 DRIVE B, B (ADUSDB to M8)
M8 B-phase drive control clock signal.
- (3) MC2 CONT (ADUSDB to MC2)
MC2 drive control signal.
[L]: MC2 ON
[H]: MC2 OFF

FIXING UNIT

[1] Composition



[2] Mechanisms

	Mechanism	Method
	Fixing	Pressure + heat roller
*1	Heat source	Heater lamp (fixing upper roller (two lamps), Fixing heat roller (one lamp))
*2	Cleaning	Upper roller: Cleaning web (with silicon oil) Fixing heat roller: Scraper
	Upper roller	Aluminum + PFA coating (black)
	Lower roller	Silicon rubber (black) + PFA tube
*3	Fixing heat roller	Aluminum + PTFE coating
	Separation	Separation claws (6 upper and 2 lower claws)
	Temperature detection	Upper roller: - Noncontact type thermistor (for control) TH1 - Contact type thermistor (for fault detection) TH2 Fixing heat roller: - Noncontact type thermistor (for control) TH3 - Contact type thermistor (for fault detection) TH4
	Overheating prevention	Noncontact type thermostat (Upper roller (one), fixing heat roller (one))
*4	Fixing roller (pressure) release	Pressure release cam, spring
*5	Jam detection	Actuator + Photosensor
*6	Thick paper conveyance	Thick paper conveyance auxiliary plate (movable) + Fixing guide solenoid (SD3)

***1 Fixing heater lamps**

Two halogen lamps are used for the fixing upper roller and one halogen lamp is used for the fixing heat roller. These halogen lamps are intended to reduce the warm-up time.

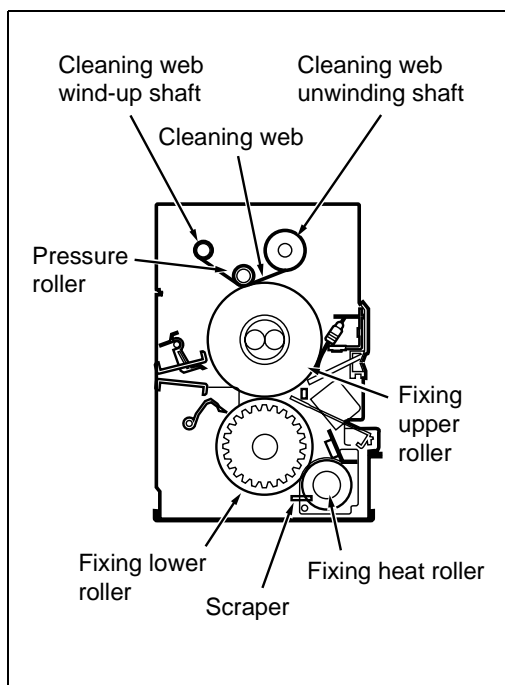
***2 Cleaning**

Fixing upper roller:

Cleaning web is used to clean the fixing upper roller. The cleaning web wind-up shaft is driven intermittently by the web drive motor (M16) via gears to supply cleaning web from the web roll. Since the number of turns of the motor is controlled according to the copy count, the amount of cleaning web supplied is approx. 0.022 to 0.058 mm/copy. A cleaning web which contains silicon oil is pressed against the fixing upper roller by the pressure roller.

Fixing heat roller:

The scraper cleans stains on the fixing heat roller.

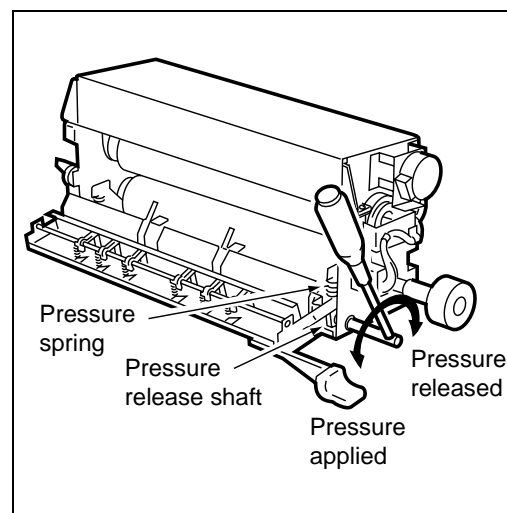
***3 Fixing heat roller**

The fixing heat roller incorporating one halogen lamp rotates keeping contact with the fixing lower roller. Thus, the fixing lower roller is heated. The fault detection mechanism is similar to that for the fixing upper roller. It is used to detect extremely high or lower temperature and a sensor fault.

***4 Fixing roller pressure/release**

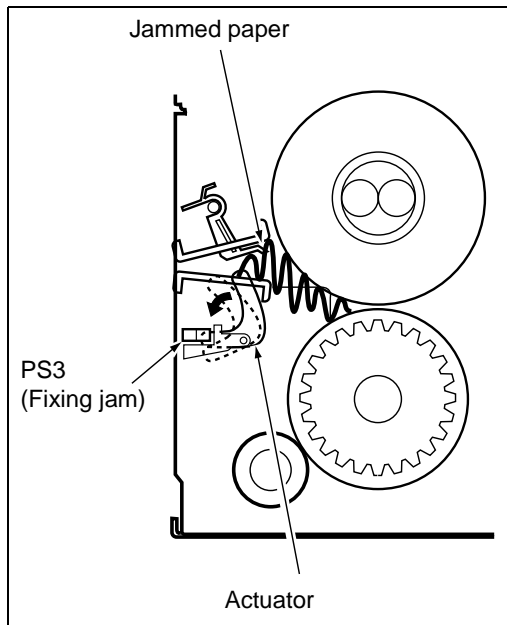
Pressure on the fixing lower roller to contact to the upper roller is applied or released by rotating the pressure release levers (two) provided at the front and back of the fixing unit.

Caution: Be sure to perform pressure release with the fixing upper cover closed.



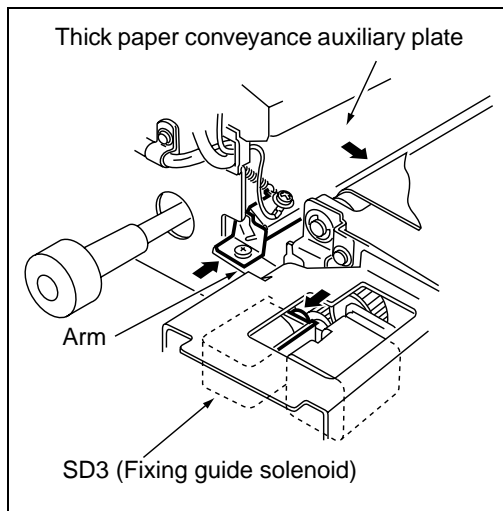
*5 Jam detection

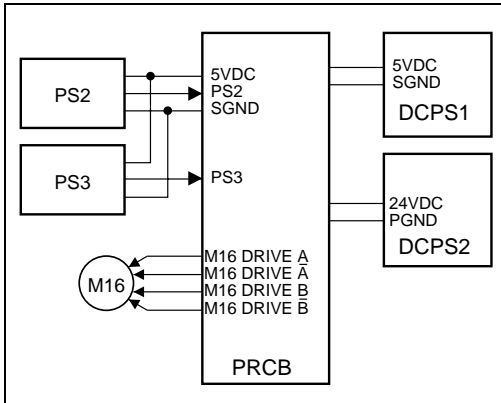
When a jam occurs in the paper exit section in the fixing unit, the jammed paper presses down the actuator, causing the fixing jam sensor (PS3) to detect a jam via the jam detection plate and actuator operation.



*6 Thick paper conveyance

When a thick paper is fed, the fixing guide solenoid (SD3) installed on the ADU side is turned ON and the thick paper conveyance auxiliary plate installed at the inlet of the fixing unit is pressed down via the arm, thus improving transportability of thick paper.



[3] M16 (Web Drive) Control

M16 (web drive) is controlled directly by PRCB (printer control board). Related signals are PS2 (fixing exit) and PS3 (fixing jam).

1. Operation

When PS2 is turned ON by passage of paper, the PRCB controls M16 according to the value of the cleaning web counter. The cleaning web counter value is incremented together with the total counter in the ejection section of the main body. The relationship between the cleaning web counter values and M16 control is as follows:

Cleaning web counter value	M16 control
1 to 10,000	Driven for 800 ms per copy
10,001 to 20,000	Driven for 500 ms per copy
20,001 to 40,000	Driven for 450 ms per copy
40,001 to 50,000	Driven for 700 ms per 2 copies
50,001 to 200,000	Driven for 500 ms per 2 copies
200,001 to 300,000	Driven for 390 ms per 2 copies
300,001 or more	Driven for 340 ms per 2 copies
500,001 or more	Driven for 300 ms per 2 copies

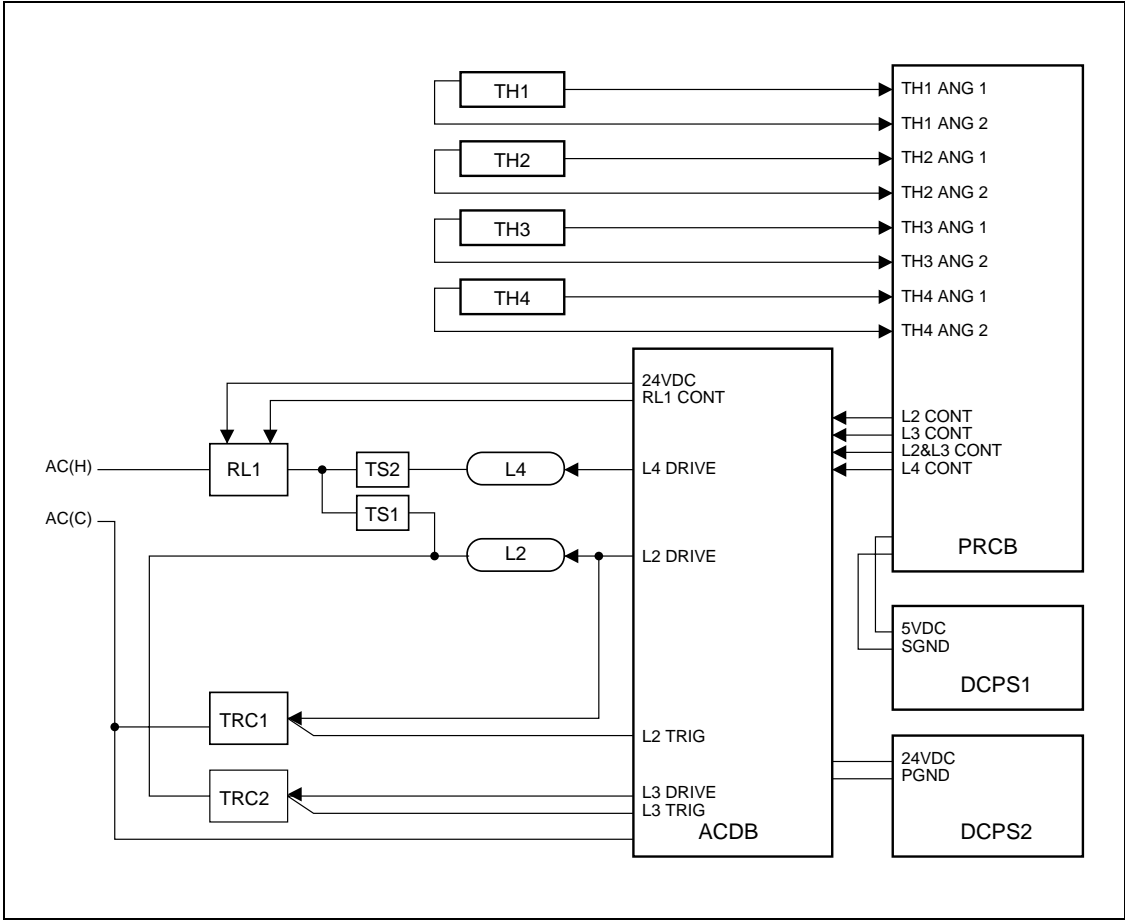
2. Signals**a. Input signals**

- (1) PS2 (PS2 to PRCB)
Detection of passage of paper at fixing unit exit.
[L]: Paper exists
[H]: Paper does not exist
- (2) PS3 (PS3 to PRCB)
Fixing jam detection signal.
[L]: Paper exists. (Jam is detected.)
[H]: Paper does not exist. (Jam is not detected.)

b. Output signal

- (1) M16 DRIVE 1, 2 (PRCB to M16)
M16 drive control signal.

[4] Fixing Temperature Control



The fixing upper roller is heated by L2 (fixing upper roller heater lamp 1) and L3 (fixing upper roller heater lamp 2) and the fixing lower roller is heated by L4 (fixing heat roller heater lamp 3) via the fixing heat roller. The PRCB (printer control board) detects the temperature of the fixing rollers using TH1 (fixing unit temperature sensor 1) and controls L2, L3, L4 via the ACDB (AC drive board).

suppress rush current. Then they are connected in parallel. TRC1 (triac 1), TRC2 (triac 2) and TRC3 (triac 3) are used for this series/parallel switching control.

Set temperature: 200°C
Warm-up time: 6 minutes or less (at room temperature 20°C)

1. Operation
a. Temperature control

The PRCB turns ON the fixing heater lamp circuit in ACDB as soon as the main switch is turned ON, causing L2, L3, and L4 to go ON until the fixing upper roller reaches the specified temperature. Series/parallel switching control is performed over L2 and L3 to prevent flicker (fluorescent lamp etc.). Immediately after L2 and L3 are turned ON, they are connected in series to

b. Protection against abnormality

Thermostats are used to prevent the temperature of the fixing rollers from rising abnormally. TS1 (thermostat 1 (upper)) is used for the fixing upper roller and TS2 (thermostat 2 (lower)) is used for the fixing heat roller respectively. Non-contact type thermostats are used, so they do not touch each rollers.

The operating temperatures of the above thermostats are as follows:

TS1: Opens at about 180°C

TS2: Opens at about 181°C

2. Signals**a. PRCB input signals**

- (1) TH1 ANG1, 2 (TH1 to PRCB)
Detection of fixing upper roller.
This signal is used to control the temperature of the fixing upper roller and to detect abnormality.
- (2) TH2 ANG1, 2 (TH2 to PRCB)
Detection of fixing upper roller temperature.
This signal is used to detect the abnormal temperature of the upper roller and to detect a low temperature alarm 180°C (356°F).
- (3) TH3 ANG1, 2 (TH3 to PRCB)
Detection of fixing heat roller temperature.
This signal is used to control the temperature of the fixing lower roller and to detect abnormality.
- (4) TH4 ANG1, 2 (TH4 to PRCB)
Detection of fixing heat roller temperature.
This signal is used to detect the abnormal temperature of the fixing lower roller and to detect abnormality.

b. PRCB Output signals

- (1) L2 CONT (PRCB to ACDB)
L2 drive control signal.
[L]: L2 ON
[H]: L2 OFF
- (2) L3 CONT (PRCB to ACDB)
L3 drive control signal.
[L]: L3 ON
[H]: L3 OFF
- (3) L2 & L3 CONT (PRCB to ACDB)
L2 & L3 drive control signal.
[L]: L2 & L3 ON
[H]: L2 & L3 OFF

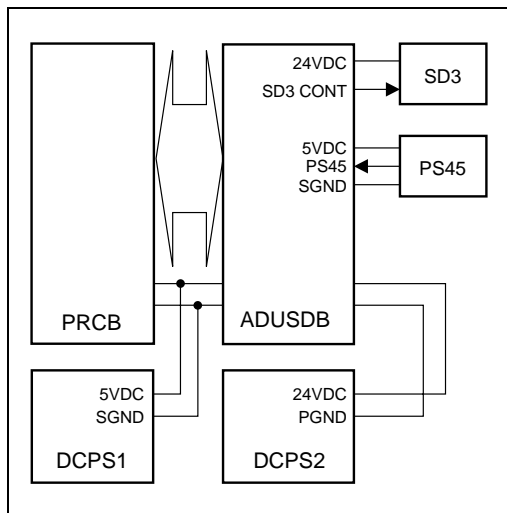
- (4) L4 CONT (PRCB to ACDB)
L4 drive control signal.

[L]: L4 ON

[H]: L4 OFF

c. ACDB output signals

- (1) RL1 CONT (ACDB to RL1)
RL1 drive control signal.
[L]: RL1 ON
[H]: RL1 OFF
- (2) L2 DRIVE (ACDB to L2)
L2 drive control signal.
[L]: L2 ON
[H]: L2 OFF
- (3) L3 DRIVE (ACDB to L3)
L3 drive control signal.
[L]: L3 ON
[H]: L3 OFF
- (4) L4 DRIVE (ACDB to L4)
L4 drive control signal.
[L]: RL4 ON
[H]: RL4 OFF
- (5) L2 TRIG (ACDB to TRC1)
TRC1 trigger signal.
- (6) L3 TRIG (ACDB to TRC2)
TRC2 trigger signal.

[5] SD3 (Fixing Guide) Control

SD3 (fixing guide) is driven by ADUSDB (ADU stand drive board) and controlled by serial data sent from PRCB (printer control board).

1. Operation

When the thick paper mode is selected on the operation panel, SD3 turns ON after the specified time from PS45 (leading edge detection) detected the paper leading edge and lowers the paper leading edge and lowers the thick paper conveyance auxiliary plate, widening the paper feed space. As a result, feeding a thick paper to the fixing unit becomes smoother.

2. Signal**a. Output signal**

- (1) SD3 CONT (ADUSDB to SD3)

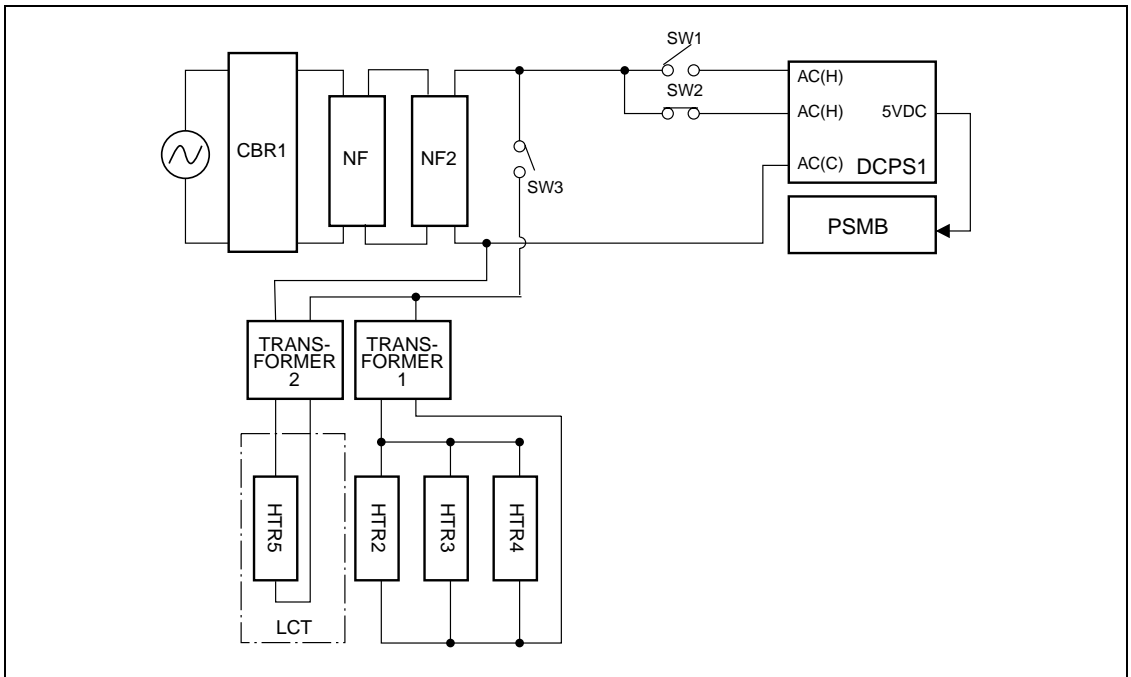
SD3 drive control signal.

[L]: SD3 ON

[H]: SD3 OFF

OTHER KINDS OF CONTROL

[1] Parts Energized when the Main Switch is OFF



1. Operation

If the power cord is plugged in the wall outlet, the following parts are energized regardless of whether SW1 (main) is ON or OFF:

a. CBR1 (circuit breaker 1)

If an excessive current flows due to a short in an internal part or other factors, this breaker turns OFF to cut off the power to the machine.

b. NF, NF2 (noise filter, noise filter 2)

The noise filter is used to reduce the noise arriving through the power line.

c. DCPS1 (DC power supply unit 1)

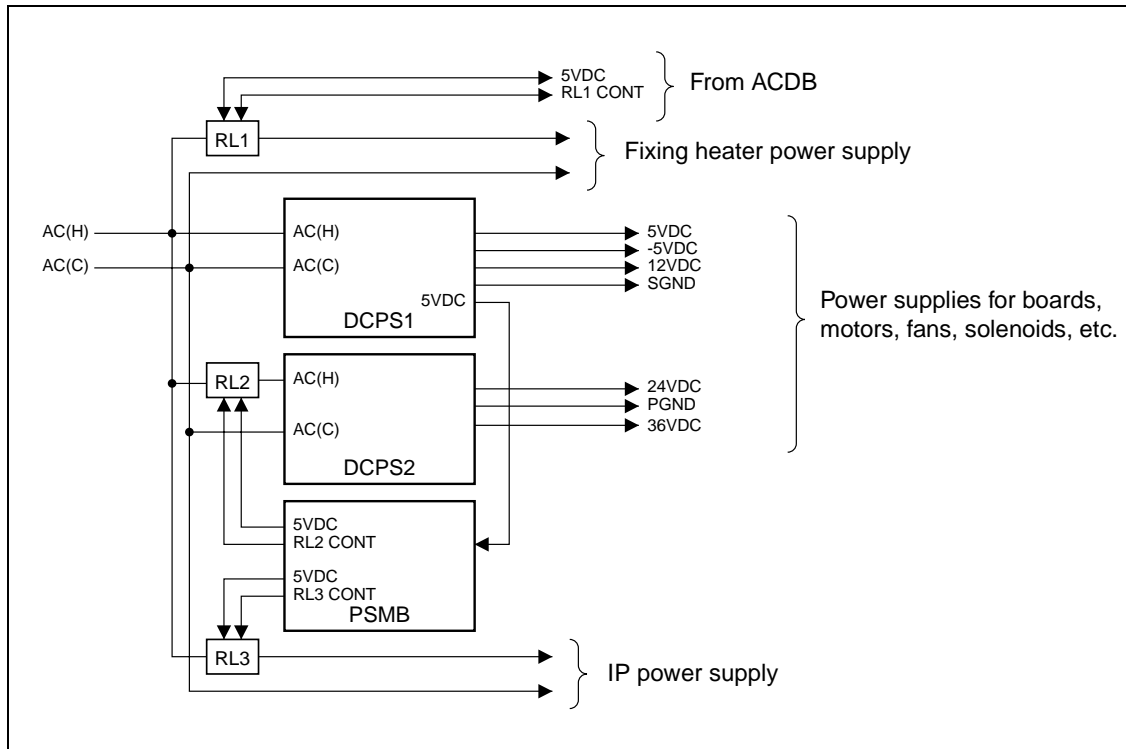
Even when SW1 is OFF, part of the 5 V output is supplied to PSMB (power supply management board). This power supply stops when SW2 (reset switch) is turned OFF.

d. Internal heaters

The tray heaters on HTR2 ~ 4 always carry current, provided that SW3 (tray heater) is turned ON, regardless of the states of SW1 and 2.

e. PSMB (power supply management board)

5V DC is supplied from DCPS1 to this board except when SW2 (reset) is OFF.

[2] Parts that Operate when the SW1 (Main) is Turned ON**1. Operation****a. Power supply**

When SW1 (main) is turned ON, AC power is supplied to the DCPS1 (DC power supply unit 1). As a result, the PSMB (power supply management board) turns ON RL2 (AC input relay for DCPS2), supplying AC power to DCPS2 (DC power supply unit 2). DCPS1 supplies 5V DC, -5V DC, and 12V DC which are used in the machine. DCPS2 supplies 24V and 36V DC.

DCPS1 and DCPS2 supply power to the PRCB (printer control board) and other boards used in the machine, starting initial operations and control inside the machine.

2. Signals**a. RL1 input signal**

- (1) RL1 CONT (ACDB to RL1)
RL1 drive control signal.
This signal controls ON/OFF operations of L2, L3, and L4 drive power relay.
[L]: RL1 ON
[H]: RL1 OFF

b. RL2 input signal

- RL2 CONT (PSWB to RL2)
RL2 drive control signal.
This signal controls ON/OFF operations of the relay for AC power supply to DCPS2.
[L]: RL2 ON
[H]: RL2 OFF

c. RL3 input signal

- (1) RL3 CONT (PSMB to RL3)
RL3 drive control signal.
This signal controls ON/OFF operations of the relay for AC power supply to IP.
[L]: RL3 ON
[H]: RL3 OFF

2. Signals**a. PRCB input signals**

- (1) FM3 EM (FM3 to PRCB)
FM3 fault detection signal.
[H]: Fault is detected
- (2) FM4 EM (FM4 to PRCB)
FM4 fault detection signal.
[H]: Fault is detected
- (3) FM5 EM (FM5 to PRCB)
FM5 fault detection signal.
[H]: Fault is detected
- (4) FM6 EM (FM6 to PRCB)
FM6 fault detection signal.
[H]: Fault is detected
- (5) FM6 FEM (ACDB to PRCB)
FM6's 24 V DC power detection signal.
[H]: 24 V power OFF
- (6) FM7 EM (FM7 to SCDB to PRCB)
FM7 fault detection signal.
[H]: Fault is detected
- (7) FM8 EM (FM8 to PRCB)
FM8 fault detection signal.
[H]: Fault is detected
- (8) FM9 EM (FM9 to PRCB)
FM9 fault detection signal.
[H]: Fault is detected
- (9) FM12 EM (FM12 to PRCB)
FM12 fault detection signal.
[H]: Fault is detected
- (10) FM3/4 FEM (ACDB to PRCB)
FM3, FM4's 24V DC power detection signal.
[H]: 24 V power OFF
- (11) FM9 FEM (ACDB to PRCB)
FM9's 24V DC power detection signal.
[H]: 24 V power OFF
- (12) FM5 FEM (ACDB to PRCB)
FM5, FM8, FM9's 24V DC power detection signal.
[H]: 24 V power OFF

b. PRCB output signals

- (1) FM3 CONT (PRCB to ACDB)
FM3 ON/OFF control signal.
[L]: FM3 ON
[H]: FM3 OFF
- (2) FM3 H/L (PRCB to FM3)
FM3's rotational speed control signal.
[L]: Low speed
[H]: High speed

- (3) FM4 CONT (PRCB to ACDB)
FM4 ON/OFF control signal.
[L]: FM4 ON
[H]: FM4 OFF
- (4) FM4 H/L (PRCB to FM4)
FM4's rotational speed control signal.
[L]: Low speed
[H]: High speed
- (5) FM5 CONT (PRCB to ACDB)
FM5, FM8 ON/OFF control signal.
[L]: FM5, FM8 ON
[H]: FM5, FM8 OFF
- (6) FM5 H/L (PRCB to FM5)
FM5's rotational speed control signal.
[L]: Low speed
[H]: High speed
- (7) FM6 CONT (PRCB to ACDB)
FM6 ON/OFF control signal.
[L]: FM6 ON
[H]: FM6 OFF
- (8) FM6 H/L (PRCB to FM6)
FM6's rotational speed control signal.
[L]: Low speed
[H]: High speed
- (9) FM7 CONT (PRCB to SCDB)
FM7 ON/OFF control signal.
[L]: FM7 ON
[H]: FM7 OFF
- (10) FM12 CONT (PRCB to ACDB)
FM12 ON/OFF control signal.
[L]: FM12 ON
[H]: FM12 OFF
- (11) FM9 CONT (PRCB to ACDB)
FM9 ON/OFF control signal.
[L]: FM9 ON
[H]: FM9 OFF

c. ADUSDB input signal

- (1) FM1 EM (FM1 to ADUSDB)
FM1 fault detection signal.
[L]: Normal
[H]: Abnormal
- (2) FM10 EM (FM10 to ADUSDB)
FM10 fault detection signal.
[L]: Normal
[H]: Abnormal
- (3) FM11 EM (FM11 to ADUSDB)
FM11 fault detection signal.
[L]: Normal
[H]: Abnormal

d. ADUSDB output signal

- (1) FM1 DRIVE (ADUSDB to FM1)
FM1 ON/OFF control signal.
[L]: FM1 ON
[H]: FM1 OFF
- (2) FM10 DRIVE (ADUSDB to FM10)
FM10 ON/OFF control signal.
[L]: FM10 ON
[H]: FM10 OFF
- (3) FM11 DRIVE (ADUSDB to FM11)
FM11 ON/OFF control signal.
[L]: FM10 ON
[H]: FM10 OFF

e. ACDB output signals

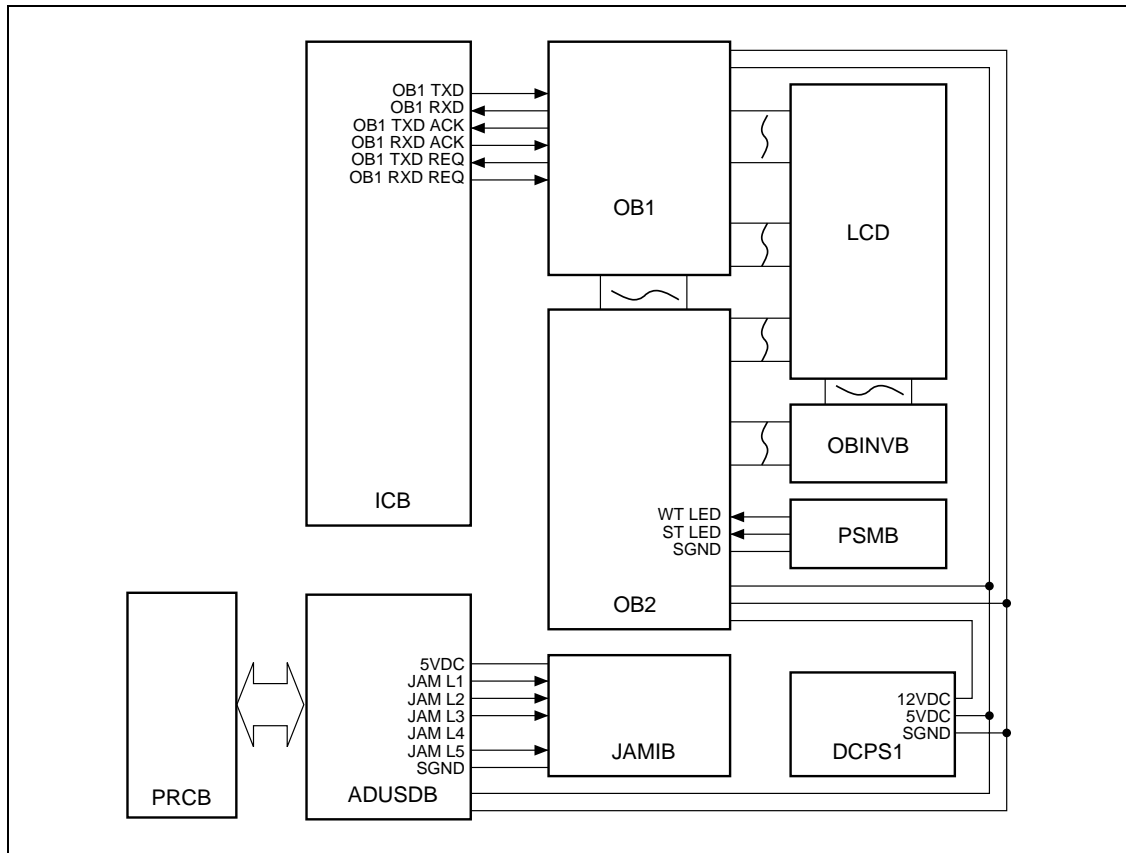
- (1) FM3 DRIVE (ACDB to FM3)
FM3 ON/OFF control signal.
[L]: FM3 ON
[H]: FM3 OFF
- (2) FM4 DRIVE (ACDB to FM4)
FM4 ON/OFF control signal.
[L]: FM4 ON
[H]: FM4 OFF
- (3) FM6 DRIVE (ACDB to FM6)
FM6 ON/OFF control signal.
[L]: FM6 ON
[H]: FM6 OFF
- (4) FM12 DRIVE (ACDB to FM12)
FM12 ON/OFF control signal.
[L]: FM12 ON
[H]: FM12 OFF
- (5) FM5/FM8 DRIVE (ACDB to FM5, FM8)
FM5, FM8 ON/OFF control signal.
[L]: FM5, FM8 ON
[H]: FM5, FM8 OFF
- (6) FM9 DRIVE (ACDB to FM9)
FM9 ON/OFF control signal.
[L]: FM9 ON
[H]: FM9 OFF

f. DCDB output signal

- (1) FM5/FM8 DRIVE (DCDB to FM5)
FM5 ON/OFF control signal.
[L]: FM5 ON
[H]: FM5 OFF

g. SCDB output signal

- (1) FM7 DRIVE (OPDB to FM7)
FM7 ON/OFF control signal.
[L]: FM7 ON
[H]: FM7 OFF

[4] Operation Panel Control

The operation panel consists of OB1 (operation board 1), OB2 (operation board 2), and LCD (indicator board). On the backlight control board is mounted an LCD. The LCD has a backlight which is driven by the OBINVB (OB inverter board) and touch switches which correspond to the display messages.

The operation panel is controlled by the OB1 based on the serial data output from the ICB (image control board).

1. Operation**a. LED ON operation**

The LED on the OB2 are turned ON/OFF by shift register/latch driver. Each IC is turned ON/OFF according to the serial data from the PRCB.

b. LCD control**(1) LCD display operation**

The LCD displays various information according to the 4-bit parallel data from the OB1.

(2) Backlight ON operation

The LCD has a backlight (cold cathode tube) to facilitate viewing. The backlight is driven by the OBINVB, and controlled by the OB1 via the OB2.

(3) Touch switch control

The LCD has touch switches, enabling you to directly select items displayed on the screen. These touch switches are controlled by the OB1.

2. Signals

a. PRCB input signals

- (1) OB1 RXD (OB1 to ICB)
Serial data which informs ICB of the operation state of OB1.
- (2) OB1 TXD REQ (OB1 to ICB)
Signal which indicates that data is being sent from OB1 to ICB.
[H]: PRCB stops sending the PB1 TXD signal.
- (3) OB1 TXD ACK (OB1 to ICB)
Acknowledgment signal which is returned each time OB1 receives one-byte data from ICB.

b. PRCB output signal

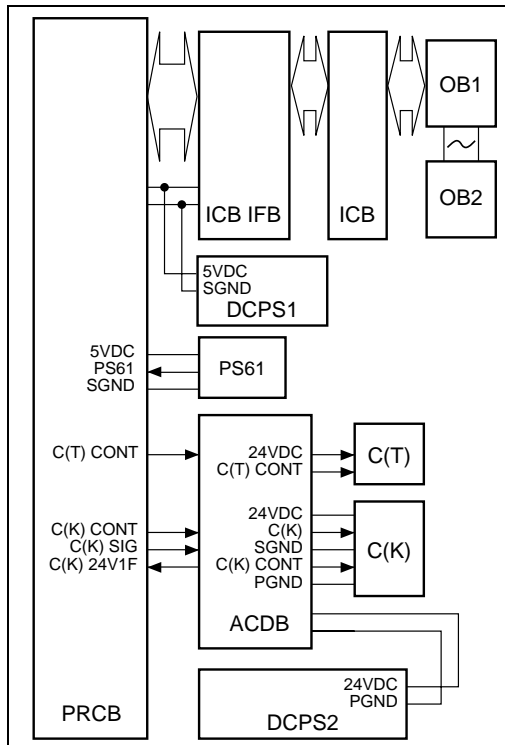
- (1) OB1 TXD (ICB to OB1)
Serial data which informs OB1 of the machine status that is known to ICB.
- (2) OB1 TXD REQ (ICB to OB1)
Signal which indicates that data is being sent from ICB to OB1.
[H]: OB1 stops sending the OB1 RXD signal.
- (3) OB1 TXD ACK (ICB to OB1)
Acknowledgment signal which is returned each time ICB receives one-byte data from OB1.

c. ADUSDB output signal

- (1) JAM1-5 (ADUSDB to JAMIB)
LED ON control signal to JAMIB (jam indicator board).
The LED corresponding to the jam location is turned ON on the JAMIB.

d. OB2 input signal

- (1) WT LED (PSWB to OB2)
Weekly timer LED ON/OFF control signal.
- (2) ST LED (PPSWB to B2)
LCD backlight ON/OFF control signal.

[5] Counter Control

This machine has the following counters:

C (T): Total counter

C (K): Key counter

These counters are controlled by the PRCB (printer control board).

The related signal is PS61 (paper exit).

1. Operation

This machine counts copies using a software counter.

(1) Paper ejection counter

The count increases by 1 each time PS61 which has been ON is turned OFF (two counts in the dual-sided copy mode).

<Operation of each counter>

a. Copy quantity display counter on OB

Displays the count of ejected papers.

b. C (K)

This counter counts in sync. with the paper exit counter.

c. C (T)

This counter counts in sync. with the paper exit counter.

2. Signals**a. Input signals****(1) PS61 (PS61 to PRCB)**

Signal indicating passage of paper in the paper exit section.

[L]: PS61 is turned ON to indicate that paper has been ejected.

(2) C (K) 24V 1F (ACDB to PRCB)

Signal indicating the state of 24 V power supply to C (K).

[L]: 24V power is not supplied.

b. Output signals**(1) C (T) CONT (PRCB to ACDB to C (T))**

C (T) drive control signal.

[L]: C (T) ON

(2) C (K) CONT (PRCB to ACDB to C (K))

C (K) drive control signal.

[L]: C (K) ON

(3) C (K) SIG (PRCB to ACDB)

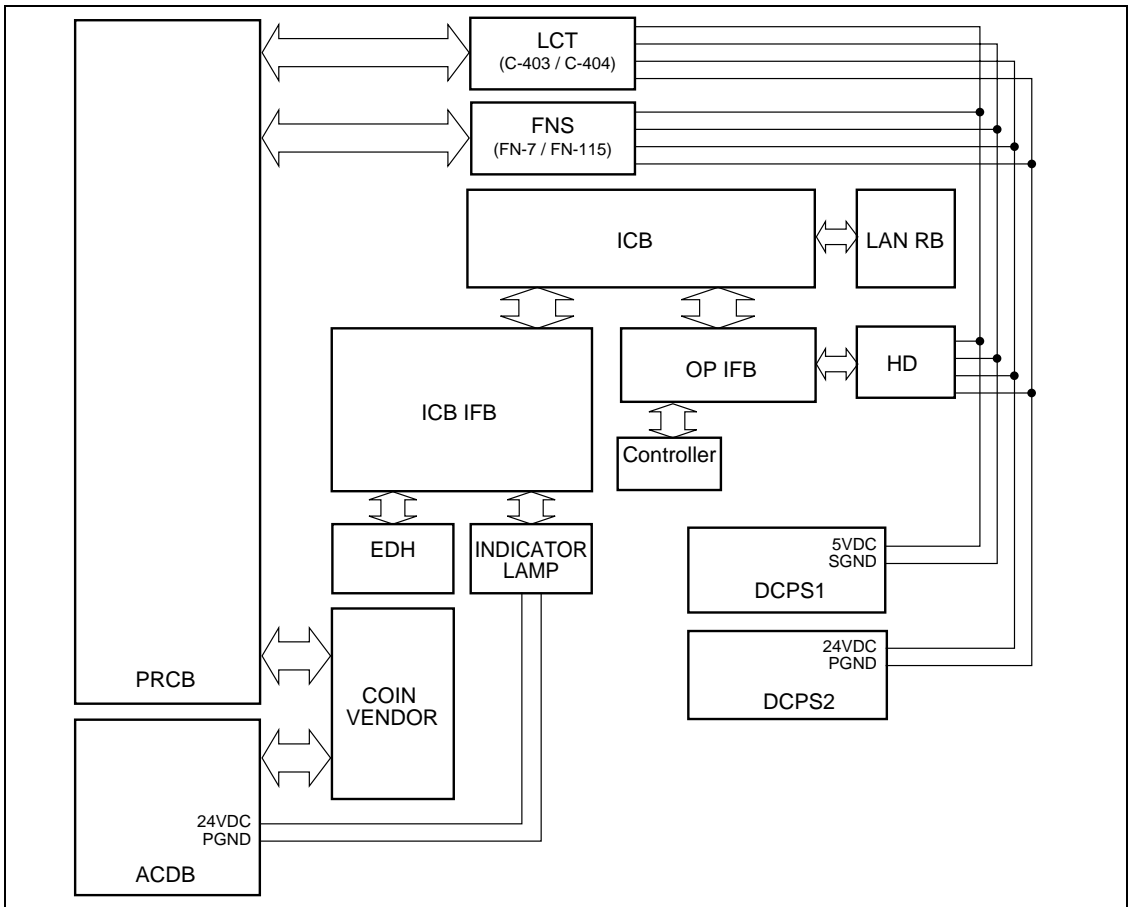
Key counter signal.

[L]: Signal exists

c. ACDB output signal**(1) C (K) (ACDB to C (K))**

Key counter signal.

[L]: Signal exists

[6] Option Control

Options such as LCT and FNS are controlled by the PRCB (printer control board).

1. Operation

The FNS incorporates a CB which exchanges only control data with the PRCB of the main unit. The LCT and FNS are powered by the DCPS1 (DC power supply unit 1).

<Functions and output timings of signals for coin vendors>

Connector	Pin No.	Signal name	Description	Output timing	Signal type
35	1	DC24V	Key counter power supply	Always	24 V, 300 mA
	2	C(K) SIG	Key counter connection recognition	—	—
	3	C(K) GND	Signal ground		
	4	C(K) DRIVE	Key counter signal count up	100-ms L-signal output after paper ejection.	
	5	PGND	Power ground	—	
36	1	Vendor Copy	Copying signal	Output from the moment START PRINT button is pressed to the moment paper ejection is completed.	
	2	Vendor FEED	Paper feed signal	Common to main body tray. 100-ms L-signal output in sync with paper feed.	
	3	Paper size 0	Paper size signal	Output when paper size is changed.	
	4	Paper size 1			
	5	Paper size 2			
	6	Paper size 3			
	7	Vendor double-sided	Double-sided copy selection signal	Output when double-sided mode is selected.	
	8	CPF SIG0	CPF mode selection signal	Output when copy or printer mode is selected.	
	9	CPF SIG1			
	10	PGND	Power ground	—	

<Functions and output timings of signals for indicator lamp>

Connector	Pin No.	Signal name	Description	Output timing	Signal type
435	1	DC24V	Indicator lamp power supply	Always	24 V, 500 mA
	2	PGND	Power ground	—	—
137	A10	PAT1	Lamp ON signal	L-signal output when printing is possible.	Open collector 5V, 200 mA
	A11	PAT2		L-signal output during scanning or printing operation.	
	B10	PAT3		L-signal output when the machine is stopped by such abnormalities as paper jam, error code, no paper, and no toner.	
	B11	PAT4		L-signal output when a warning of toner supply is indicated.	

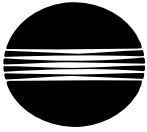
Note: When an error code occurs, a signal is output from PAT3. However, since the 24 V indicator lamp power supply is interrupted, the lamp does not turn ON.



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MINOLTA ME GmbH



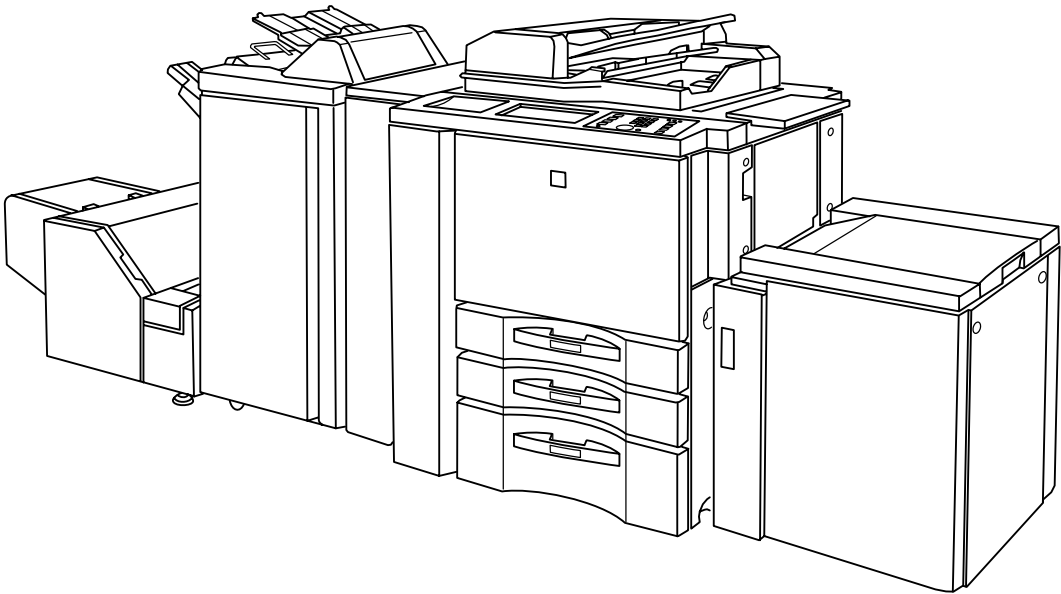
MINOLTA

Service Manual

[Field Service]

The essentials of Imaging

Di850



There are using both Official Options name and Popular Options name in the Di850 Service Manual and Option Service Manual.

Official Options name : Popular Options name

EDH-5 : RADF

C-403/C-404 : LT and LCT

FN-115 : FNS

FN-7 : FNS

Cover Inserter C : PI

PK-3 : PU

TMG-2 : TU

ZK-2 : PZ

In-System Writer : ISW

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APPENDIX

- [1] Overall Wiring Diagram

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Minolta Corporation strongly recommends that all servicing be performed only by Minolta-trained service technicians.

Changes may have been made to this copier to improve its performance after this Service Manual was printed. Accordingly, Minolta Corporation does not warrant, either explicitly or implicitly, that the information contained in this Service Manual is complete and accurate.

The user of this Service Manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this Service Manual is intended.


Therefore, this Service Manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.


Keep this Service Manual also for future service.


DANGER, WARNING, AND CAUTION SYMBOLS AND EXPRESSIONS

In this Service Manual, each of three expressions "⚠ DANGER," "⚠ WARNING," and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.

When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

 **DANGER** :Action having a high possibility of suffering death or serious injury

 **WARNING** :Action having a possibility of suffering death or serious injury

 **CAUTION** :Action having a possibility of suffering a slight wound, medium trouble, and property damage

Symbols used for important warning items are defined as follows:

 :Precaution

 :General precaution

 :Electric shock

 :Heated surface

 :Prohibition

 :General prohibition

 :Do not touch with wet hand

 :Do not disassemble

 :Direction

 :General instruction

 :Unplug




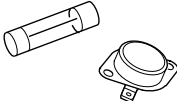

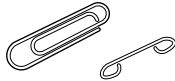

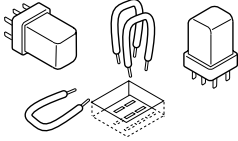

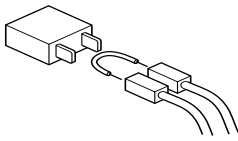


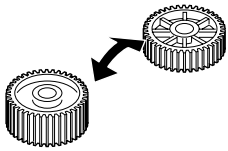
 :Ground/Earth

SAFETY WARNINGS

[1] MODIFICATIONS NOT AUTHORIZED BY MINOLTA

Minolta copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. The points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

! PROHIBITED ACTIONS:		
• Using any cables or power cord not specified by Minolta.		
• Using any fuse or thermostat not specified by Minolta. Safety will not be assured, leading to a risk of fire and injury.		
• Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.		
• Disabling relay functions (such as wedging paper between relay contacts)		
• Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury.		
• Making any modification to the copier unless instructed by Minolta		
• Using parts not specified by Minolta		

[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

Minolta copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1. Power Supply

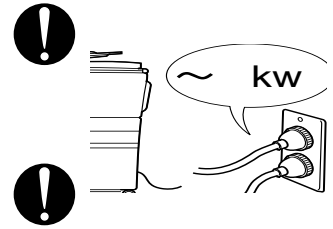
WARNING: Wall Outlet

- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

If excessive current flows in the wall outlet, fire may result.



WARNING: Power Plug and Cord

- Make sure the power cord is plugged in the wall outlet securely. Contact problems may lead to increased resistance, overheating, and the risk of fire.

- Check whether the power cord is damaged. Check whether the sheath is damaged.

If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by Minolta. Using the damaged power cord may result in fire or electric shock.

- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:

- a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier.

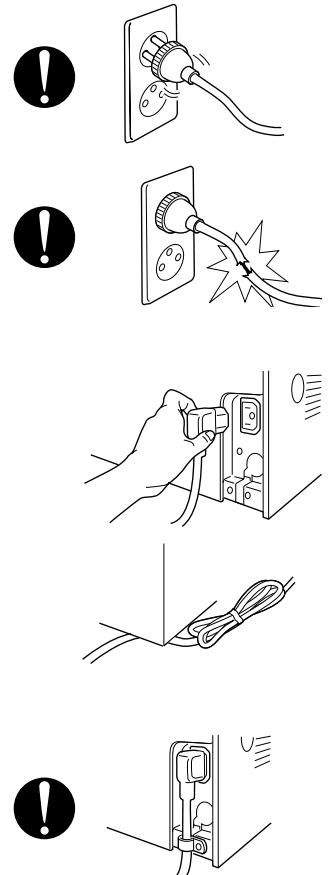
Secure the cord with a fixture properly.

- b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by Minolta.

If the power cord (inlet type) is not connected to the copier securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

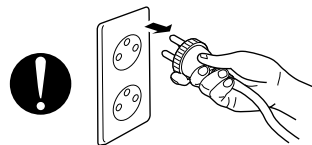
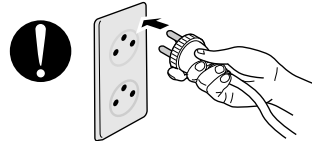
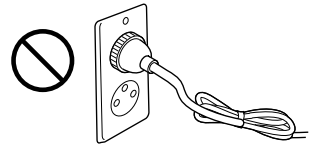
- Check whether the power cord is not stepped on or pinched by a table and so on.

Overheating may occur there, leading to a risk of fire.



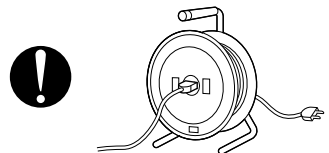
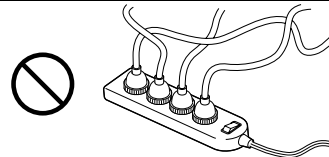
WARNING: Power Plug and Cord

- Do not bundle or tie the power cord.
Overheating may occur there, leading to a risk of fire.
- Check whether dust is collected around the power plug and wall outlet.
Using the power plug and wall outlet without removing dust may result in fire.
- Do not insert the power plug into the wall outlet with a wet hand.
The risk of electric shock exists.
- When unplugging the power cord, grasp the plug, not the cable.
The cable may be broken, leading to a risk of fire and electric shock.



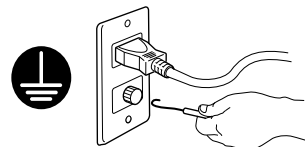
WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.
If used, the risk of fire exists.
- When an extension cord is required, use a specified one.
Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
Do not use an extension cable reel with the cable taken up. Fire may result.



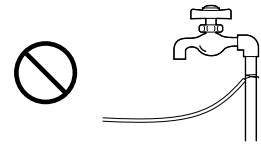
WARNING: Ground Lead

- Check whether the copier is grounded properly.
If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
 - a. Ground terminal of wall outlet
 - b. Ground terminal for which Class D work has been done

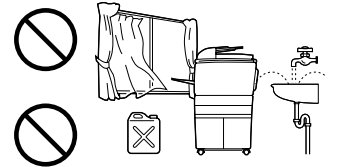


! WARNING: Ground Lead

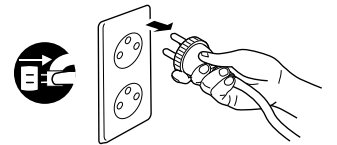
- Pay attention to the point to which the ground lead is connected.
Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
 - a. Gas pipe (A risk of explosion or fire exists.)
 - b. Lightning rod (A risk of electric shock or fire exists.)
 - c. Telephone line ground (A risk of electric shock or fire exists in the case of lightning.)
 - d. Water pipe or faucet (It may include a plastic portion.)

**2. Installation Requirements****! WARNING: Prohibited Installation Place**

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.
A risk of fire exists.
- Do not place the copier in a place exposed to water such as rain water.
A risk of fire and electric shock exists.

**! WARNING: Nonoperational Handling**

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
Dust collected around the power plug and outlet may cause fire.

**! CAUTION: Temperature and Humidity**

- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.
A risk of degradation in copier performance or deformation exists.
Do not place the copier in a place exposed to cool wind.
Recommended temperature and humidity are as follows:
Temperature: 10°C to 30°C
Humidity: 10% to 80% (no dew condensation)
Avoid other environments as much as possible.

**! CAUTION: Ventilation**

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.
Place the copier in a well ventilated place to prevent machine problems and image faults.

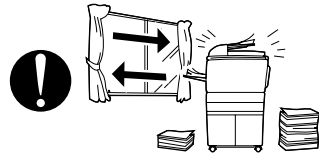


! CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.

If a bad smell of ozone is present in the following cases, ventilate the room.

- When the copier is used in a poorly ventilated room
- When taking a lot of copies
- When using multiple copiers at the same time

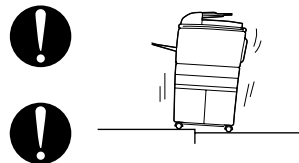
**! CAUTION: Vibration**

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.

Constant vibration will cause problems.

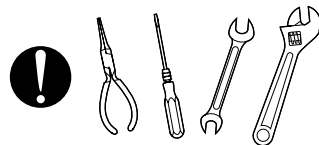
- Be sure to lock the caster stoppers.

In the case of an earthquake and so on, the copier may slide, leading to a injury.

**! CAUTION: Inspection before Servicing**

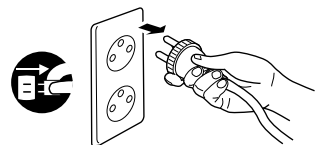
- Before conducting an inspection, read all relevant documentation (Service Manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure, using only the prescribed tools. Do not make any adjustment not described in the documentation.

If the prescribed procedure or tool is not used, the copier may break and a risk of injury or fire exists.



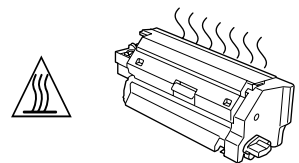
- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.

When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.



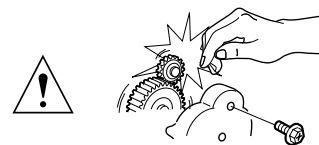
- The area around the fixing unit is hot.

You may get burnt.

**! DANGER: Work Performed with the Copier Powered**

- Take every care when making adjustments or performing an operation check with the copier powered.

If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



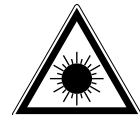
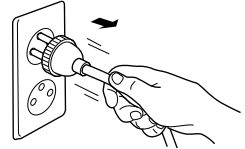
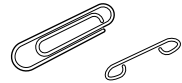
⚠ DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached.
High-voltage exists around the drum unit. A risk of electric shock exists.



⚠ WARNING: Safety Checkpoints

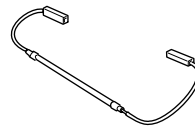
- Check the exterior and frame for edges, burrs, and other damages.
The user or CE may be injured.
- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.
They can short internal circuits and cause electric shock or fire.
- Check wiring for squeezing and any other damage.
Current can leak, leading to a risk of electric shock or fire.
- When disconnecting connectors, grasp the connector, not the cable.
(Specifically, connectors of the AC line and high-voltage parts)
Current can leak, leading to a risk of electric shock or fire.
- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.
Current can leak, leading to a risk of copier trouble or fire.
- Check high-voltage cables and sheaths for any damage.
Current can leak, leading to a risk of electric shock or fire.
- Check electrode units such as a charging corona unit for deterioration and sign of leakage.
Current can leak, leading to a risk of trouble or fire.
- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.
The laser light can enter your eye, leading to a risk of loss of eyesight.
- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.
The laser light can enter your eye, leading to a risk of loss of eyesight.
- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.
Improper replacement can cause explosion.



! WARNING: Safety Checkpoints

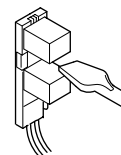
- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.

A risk of fire exists.



- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.

If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).



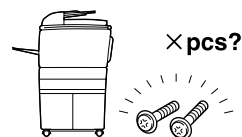
- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

Current can leak, leading to a risk of electric shock or fire.



- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

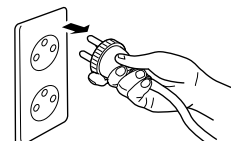
A risk of copier trouble, electric shock, and fire exists.



! HANDLING OF MATERIALS FOR SERVICING

- Unplug the power cord from the wall outlet.

Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.

A risk of fire exists.



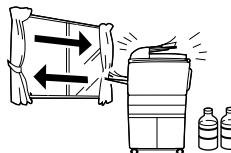
- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

A risk of fire exists.



- When using any solvent, ventilate the room well.

Breathing large quantities of organic solvents can lead to discomfort.



⚠ DANGER: HANDLING OF MATERIALS FOR SERVICING

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

If the substances get in the eye, rinse with plenty of water immediately.
When symptoms are noticeable, consult a physician.



- Never throw the used cartridge and toner into fire.
You may be burned due to dust explosion.

**[3] CONCLUSION**

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION**IMPORTANT INFORMATION**

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.

Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

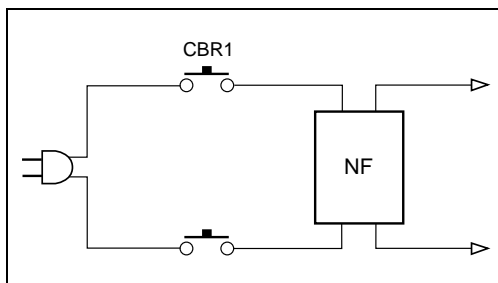
SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.

- [1] Overall protection circuit
- [2] L2 and L4 (fixing heater lamps) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

[1] Overall Protection Circuit



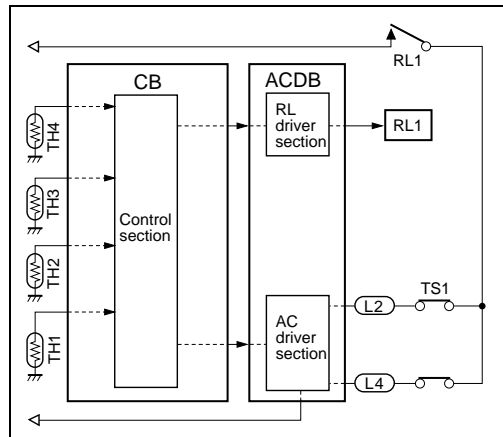
1. Protection by CBR1 and CBR2 (circuit breakers)

CBR1 interrupts the AC line instantaneously when an excessive current flows due to a short in the AC line.

⚠ CAUTION:

The CBR1 and CBR2 functions must not be deactivated under any circumstances.

[2] Protection by L2 and L4 (fixing heater lamps) overheating prevention circuit



1. Protection by software

The output voltage from TH1 (fixing temperature sensor 1) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp 1), and L4 (fixing heater lamp 3), and RL1 (main relay) are turned OFF.

⚠ CAUTION:

Do not change the gap between the roller and TH1. When replacing TH1, check the specified mounting dimensions.

The RL1 function must not be deactivated under any circumstances.

2. Protection by the hardware circuit

The output voltages from TH1 and TH2 (fixing temperature sensor 2), TH3 (fixing temperature sensor 3), and TH4 (fixing temperature sensor 4) are compared with the abnormality judgement reference value in the comparator circuit. If the output voltage from TH1, TH2, TH3, or TH4 exceeds the reference value, L2, L4, and RL1 are turned off in hardware means.

⚠ CAUTION:

Periodically check the TH2 and TH4 faces contacting the roller, and replace TH2 and/or TH4 if any abnormality is detected. Do not change the gap between the roller and each sensor TH2 and TH4. When replacing TH2 or TH4, check the specified mounting dimensions.

The RL1 function must not be deactivated under any circumstances.

3. Protection by TS1 (thermostat (upper)) and TS2 (thermostat (lower))

TS1 is turned off when the temperature of the fixing roller (upper) exceeds the specified value, and TS2 is turned off when the temperature of the heating (upper) roller exceeds the specified value, thus interrupting the power to L2 and L4 directly.

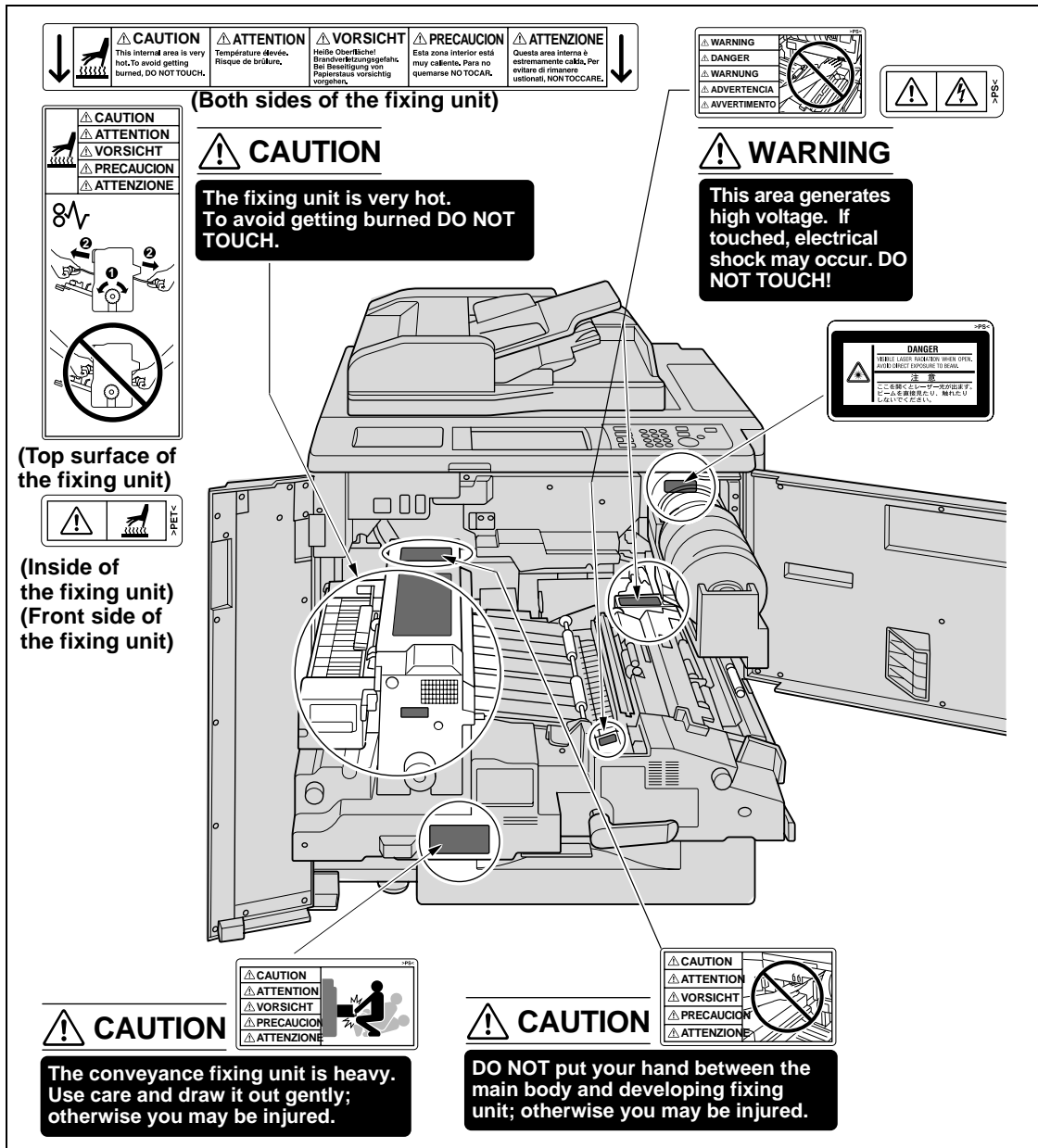
⚠ CAUTION:

Do not use any other electrical conductor in place of TS1 and TS2.

INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine areas.

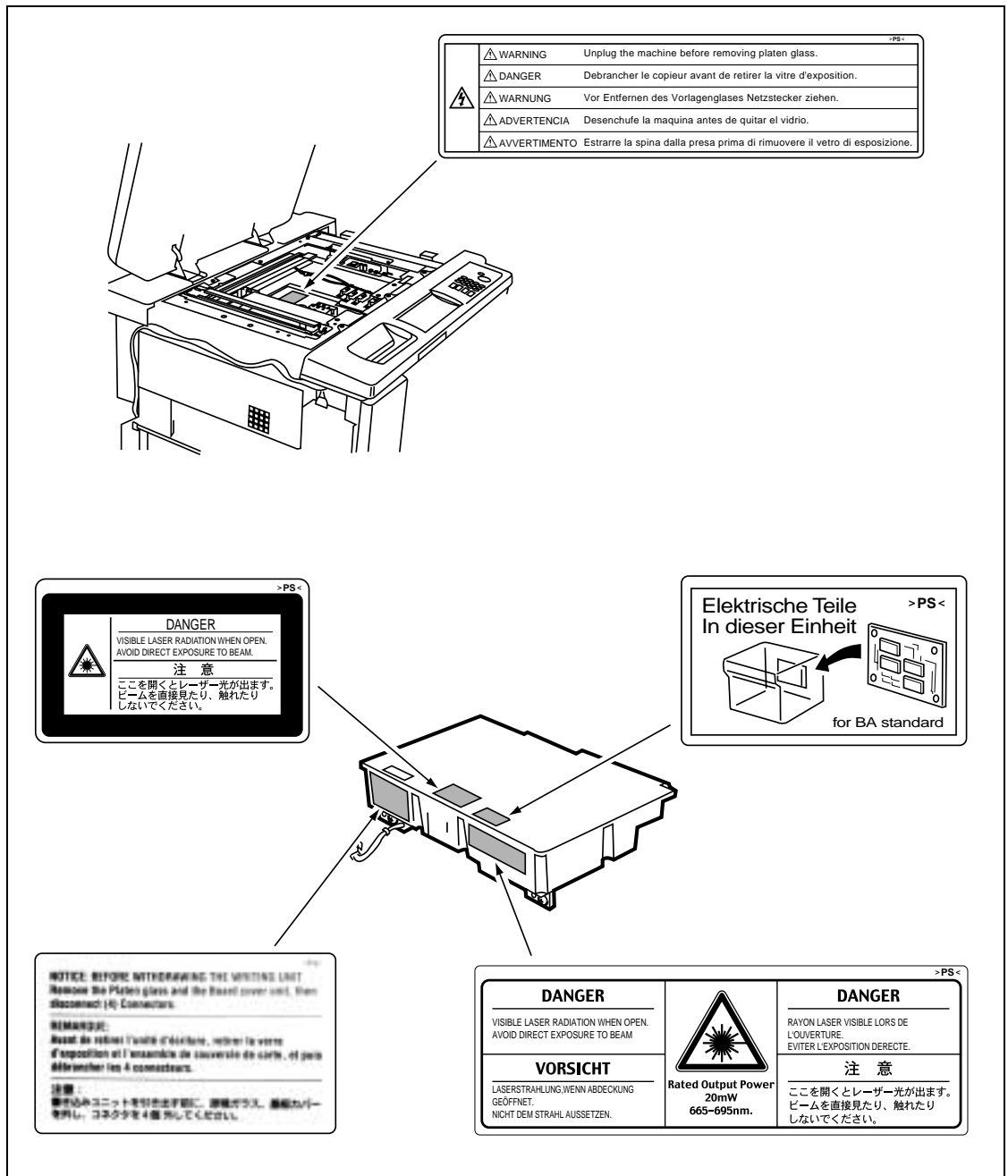
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and shock hazards.



⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

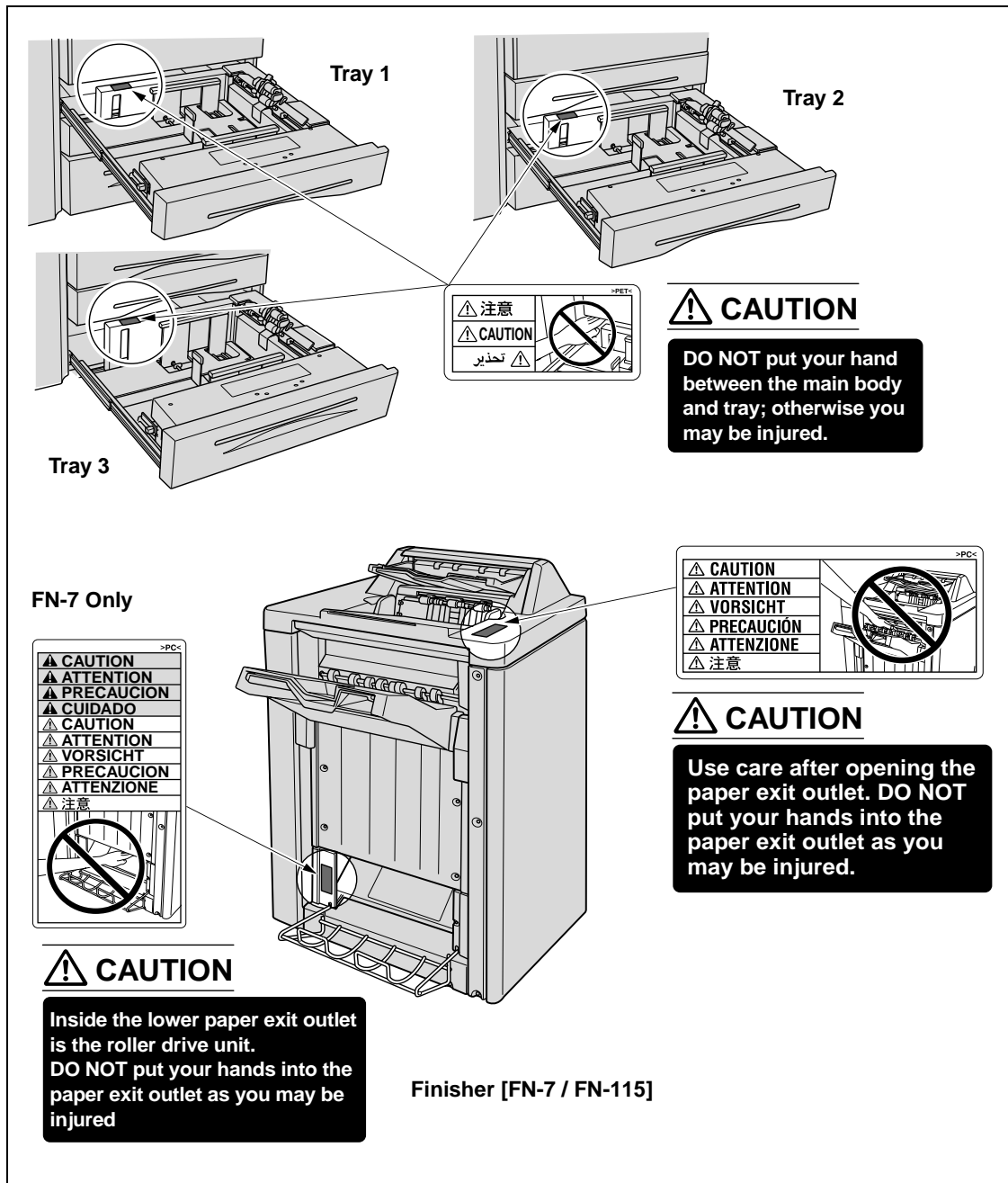
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



⚠ CAUTION

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Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



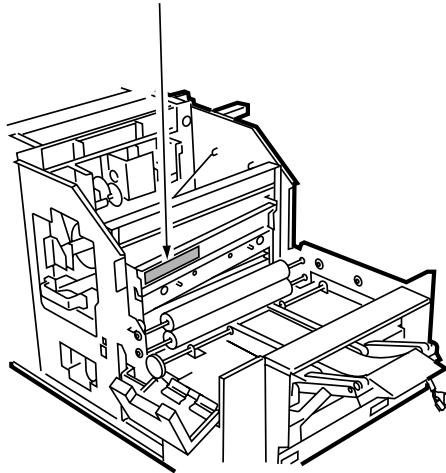
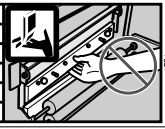
CAUTION

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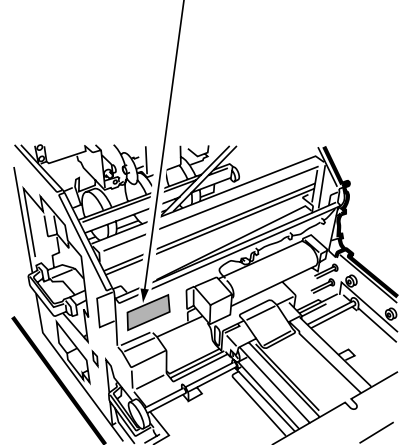
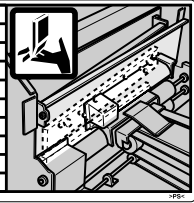
⚠ WARNING

⚠ WARNING	⚠ WARNING
⚠ DANGER	⚠ DANGER
⚠ ADVERTENCIA	⚠ ADVERTENCIA
⚠ ADVERTÊNCIA	⚠ ADVERTIMENTO
⚠ 警告	⚠ 警告



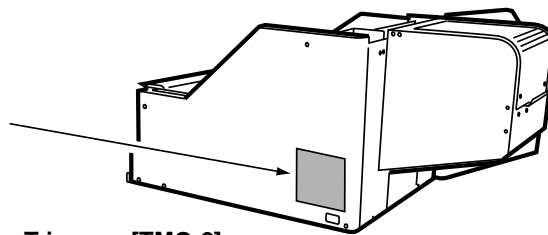
⚠ CAUTION

⚠ CAUTION	⚠ CAUTION
⚠ ATTENTION	⚠ ATTENTION
⚠ PRECAUCIÓN	⚠ PRECAUCIÓN
⚠ CUIDADO	⚠ CUIDADO
⚠ CAUTION	⚠ CAUTION
⚠ ATTENTION	⚠ ATTENTION
⚠ VORSICHT	⚠ VORSICHT
⚠ PRECAUCIÓN	⚠ PRECAUCIÓN
⚠ ATTENZIONE	⚠ ATTENZIONE
⚠ 注意	⚠ 注意



⚠ WARNING

⚠ WARNING	Unplug the machine before removing panels.
⚠ DANGER	D brancher l'appareil avant de retirer les panneaux anti-ries.
⚠ ADVERTENCIA	Desenchufe la máquina antes de quitar los paneles.
⚠ ADVERTÊNCIA	Desconecte a unidade da tomada antes de remover os painéis.
⚠ WARNING	Unplug the machine before removing panels.
⚠ DANGER	D brancher l'appareil avant de retirer les panneaux anti-ries.
⚠ WARNING	Vor Abnahme der Schutzverkleidung Netzstecker ziehen.
⚠ ADVERTENCIA	Desenchufe la máquina antes de quitar los paneles.
⚠ ADVERTIMENTO	Desconecte a máquina prima di rimuovere i pannelli.
⚠ 警告	パネルを外す時は、電源プラグを抜いてください。
⚠ 警告	在取下防護板之前，請拔出電源插頭。
⚠ 警告	在取下防護板之前，請拔出電源插頭。
⚠ 注意	اسحب مأخذ طاقة الآلة قبل إزالة ألواح الحماية.

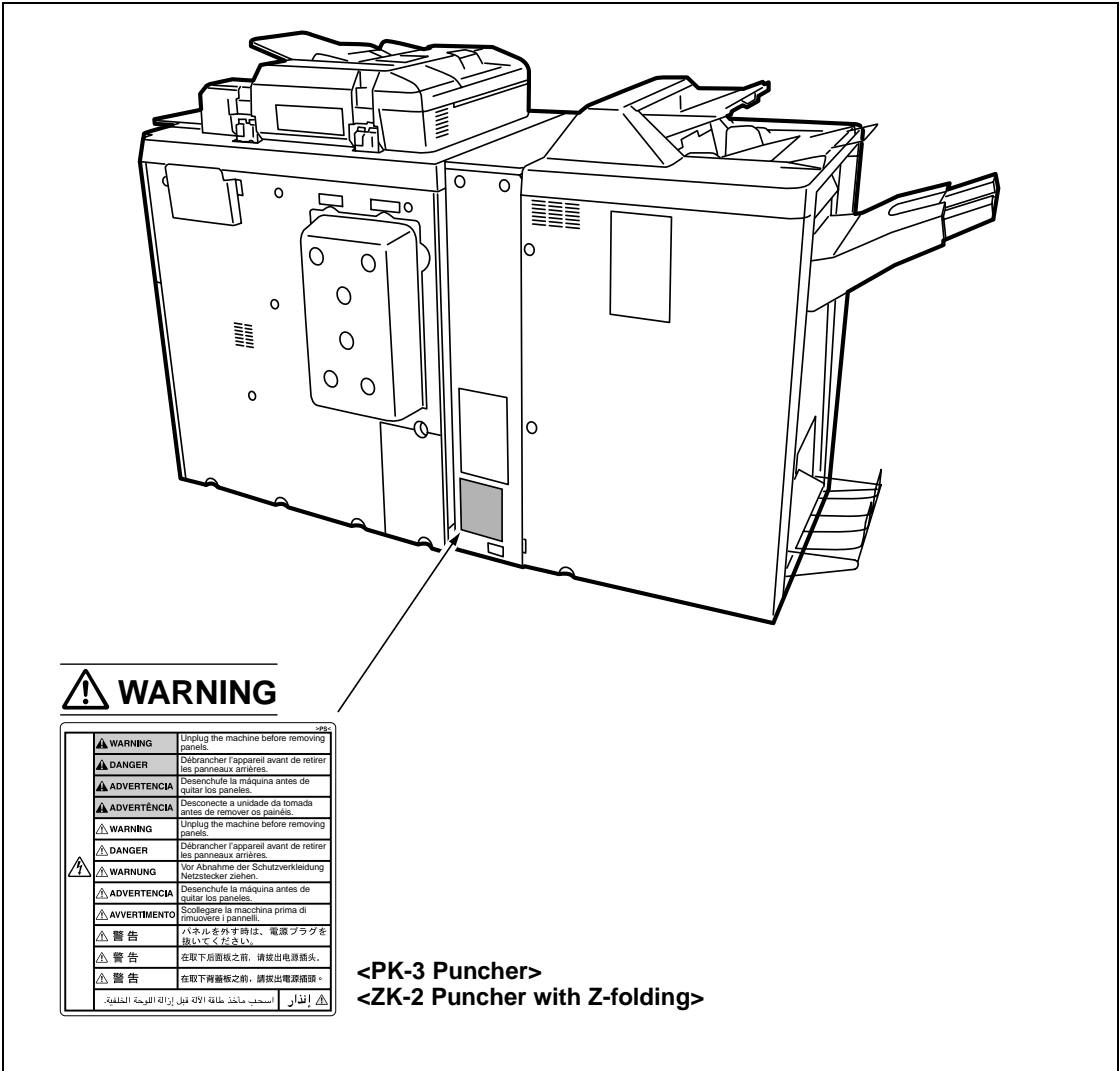


Trimmer [TMG-2]

⚠ CAUTION

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Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



⚠ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.



DISASSEMBLY/ASSEMBLY

This section explains how to disassemble and reassemble the machine. When disassembling and reassembling the machine, follow the precautions given below.

1. Be sure the power cord has been unplugged from the wall outlet.
2. The disassembled parts must be reassembled following the disassembly procedure in reverse unless otherwise specified.
3. Care should be taken not to lose small parts. Care should also be taken not to install small parts in wrong places.
4. Do not operate the machine before installing all the disassembled parts completely.
5. Removal of some screws is prohibited in this section. Never loosen them.

EXTERNAL SECTION

⚠ Caution:

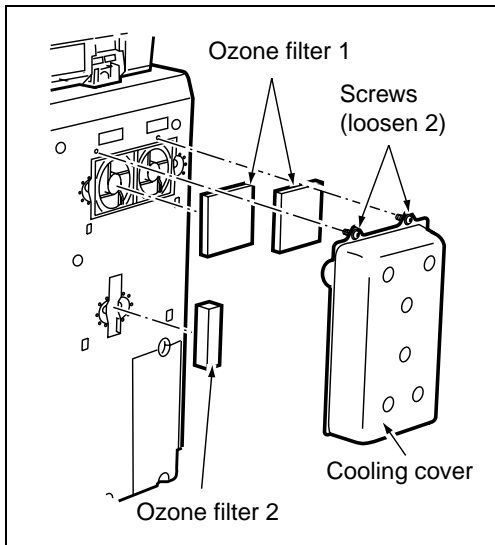
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Replacing Ozone Filters

Caution: When replacing ozone filters, insert them in the openings in the main body as far as they will go.

a. Procedure

- (1) Loosen the two screws to remove the cooling fan cover.
- (2) Replace two ozone filters 1 (upper/2) and one ozone filter 2 (lower/1).

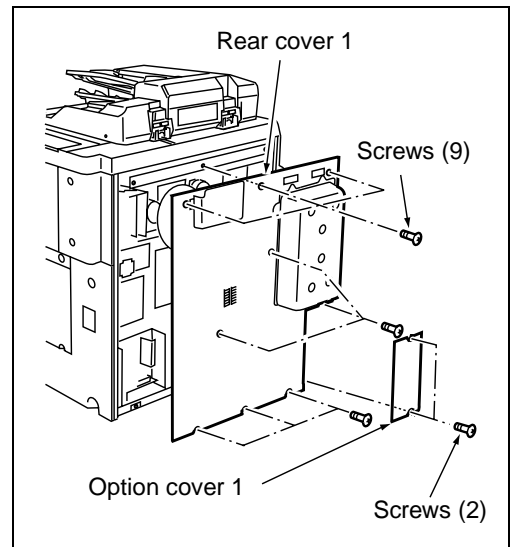


- (3) Reinstall the above parts following the removal steps in reverse.

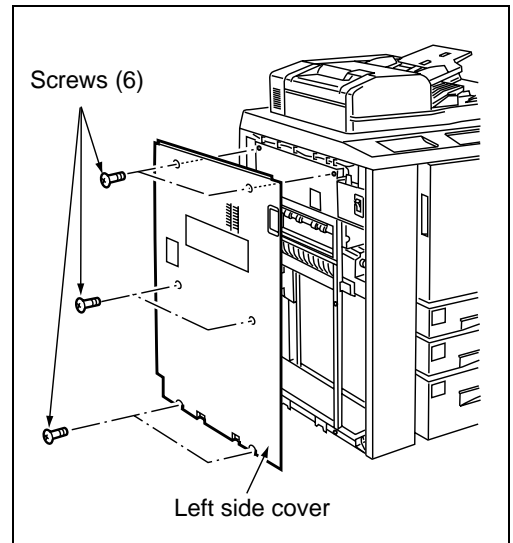
[2] Removing and Reinstalling the External Cover

a. Procedure

- (1) Remove the two screws to detach the option cover.
- (2) Remove the nine screws to detach the rear cover.

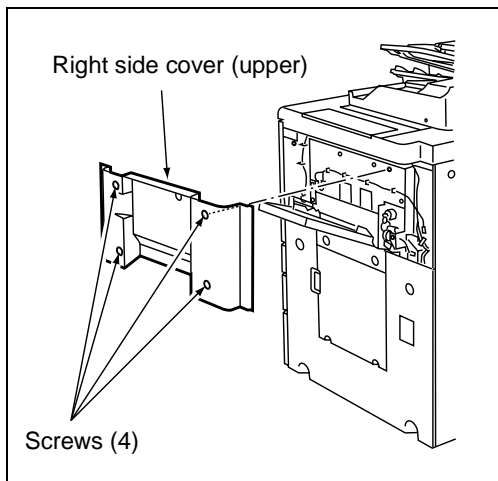


- (3) Remove the six screws to detach the left side cover.

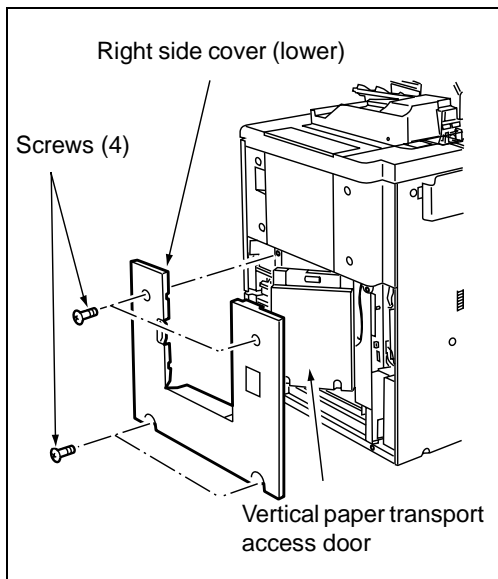


EXTERNAL SECTION

- (4) Remove the four screws to detach the right side cover (upper).



- (5) Open the vertical paper transport jam access door.
 (6) Remove the four screws to detach the right side cover (lower).



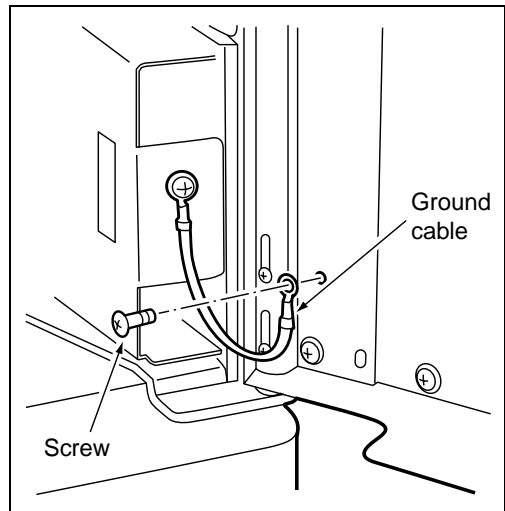
- (7) Reinstall the above parts following the removal steps in reverse.

Caution: Covers can be detached separately.

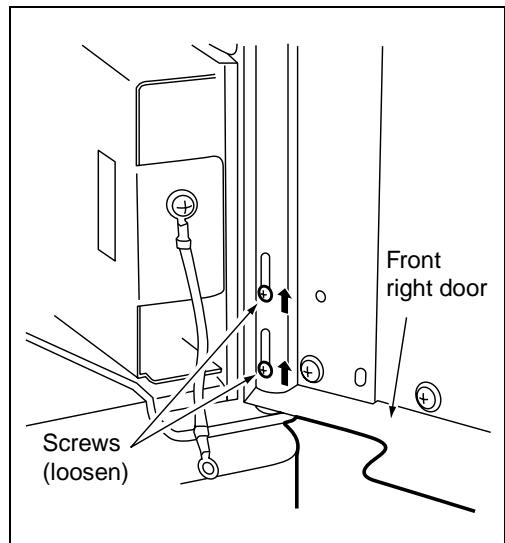
[3] Removing and Reinstalling the Front Right Door

a. Procedure

- (1) Open the front right door.
 (2) Remove the screw to disconnect the ground cable.



- (3) Loosen the two screws securing the hinge.
 (4) While holding the top of the front right door by hand so that it does not fall down, remove the door with the hinge pin held up.



- (5) Reinstall the above parts following the removal steps in reverse.

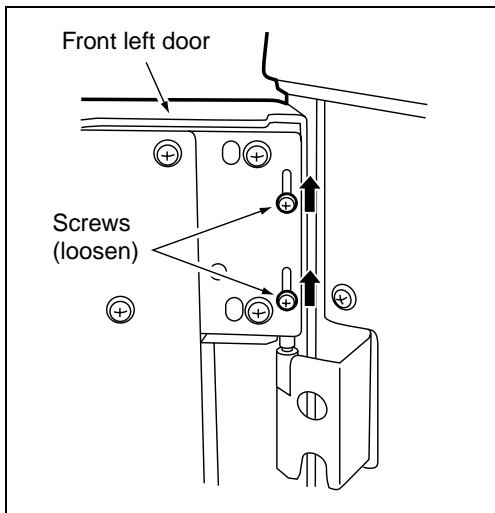
[4] Removing and Reinstalling the Front Left Door

a. Procedure

- (1) Open the front left door.
- (2) Loosen the two screws securing the hinge.

Caution: When loosening the screws, hold the top of the door by hand so that it does not fall down.

- (3) Remove the door with the hinge pin held up.

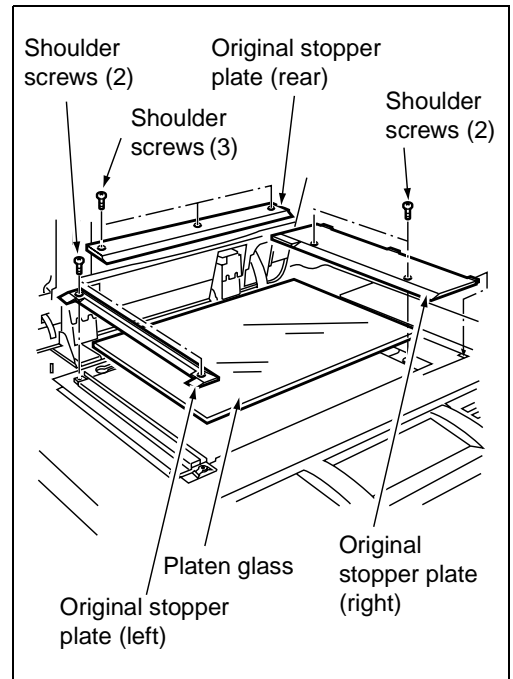


- (4) Reinstall the above parts following the removal steps in reverse.

[5] Removing and Reinstalling the Operation Panel

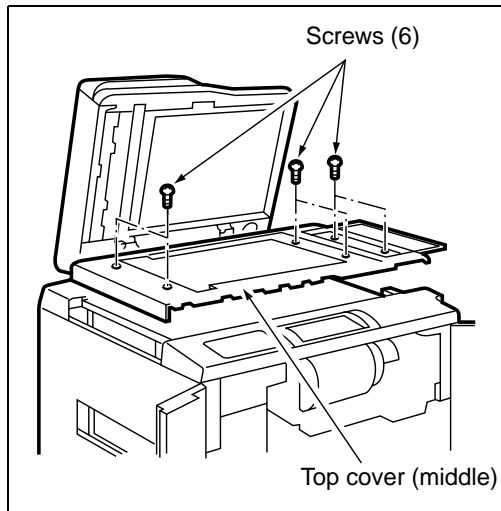
a. Procedure

- (1) Open the RADF.
- (2) Remove the two shoulder screws to remove the original stopper plate (right).
- (3) Remove the three shoulder screws to remove the original stopper plate (rear).
- (4) Remove the two shoulder screws to remove the original stopper plate (left).
- (5) Remove the platen glass.

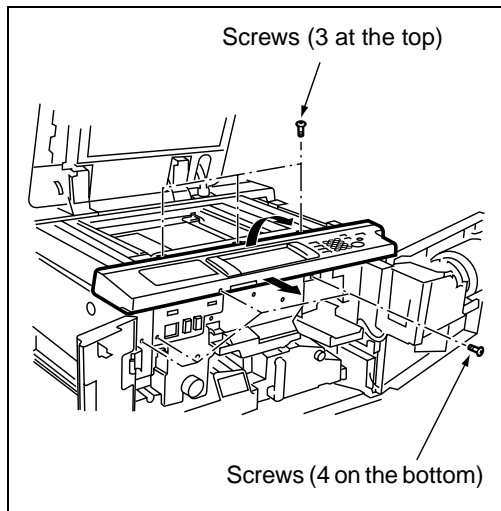


EXTERNAL SECTION

- (6) Remove the six screws to detach the top cover (middle).
- (7) Open the front right door and the front left door.



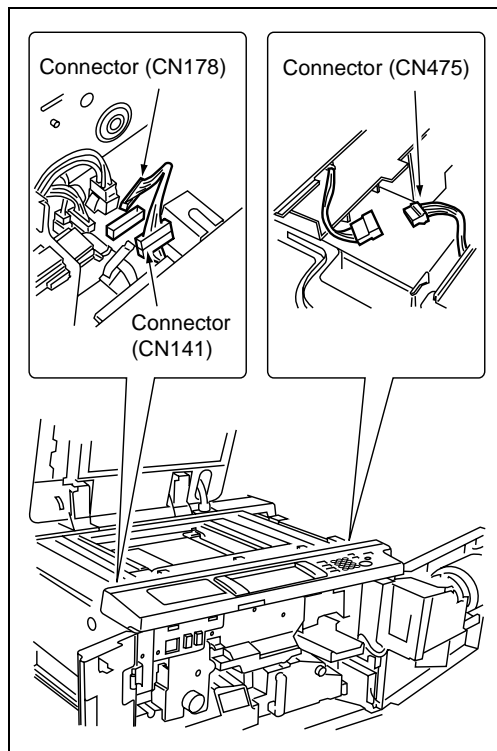
- (8) Draw out the toner supply unit. (See "TONER SUPPLY UNIT.")
- (9) Remove the seven screws (three at the top and four on the bottom).
- (10) Draw out the operation panel forward.



Caution: When removing the operation panel, pay attention to the following points:

- The operation panel and main body are connected with a wiring harness. Moving the operation panel too far away from the main body could break the wiring harness.
- Care should be taken not to damage the display section.

- (11) Disconnect the two relay connectors (CN178, CN475) and remove the operation panel.



- (12) Reinstall the above parts following the removal steps in reverse.

DRIVE SECTION



Caution:

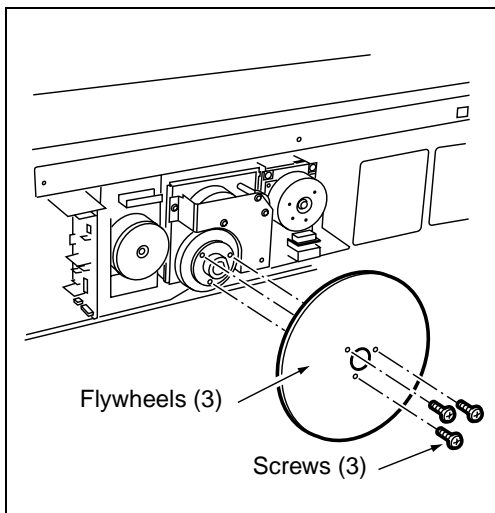
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Drum Motor

Caution: Be sure to draw the drum unit out of the main body before removing or reinstalling the drum drive motor. If you fail to draw out the drum unit, the cleaning blade may be damaged because the drum rotates when installing or removing the flywheel or gear.

a. Procedure

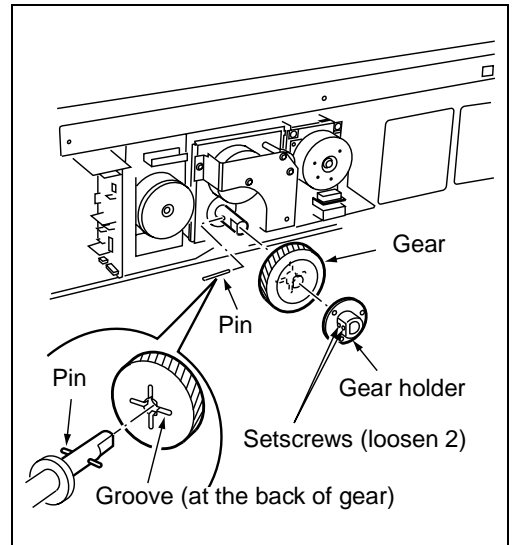
- (1) Draw the drum unit out of the main body. (See "DRUM UNIT.")
- (2) Remove the rear cover. (See "EXTERNAL SECTION.")
- (3) Remove the three screws to remove the three flywheels.



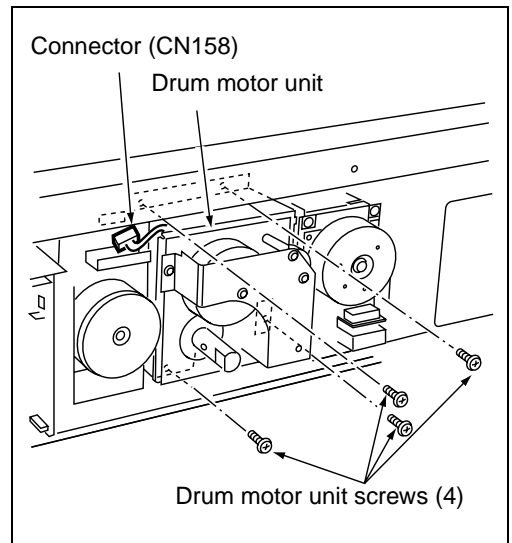
- (4) Loosen the two setscrews to remove the gear holder, gear, and pin from the shaft.

Caution1: Install the gear with the shaft pin fit into the groove at the back of the gear. As the pin inserted in the shaft moves freely, take care not to drop or lose it.

Caution2: Secure the gear holder with the setscrews while pressing the gear holder against the gear.

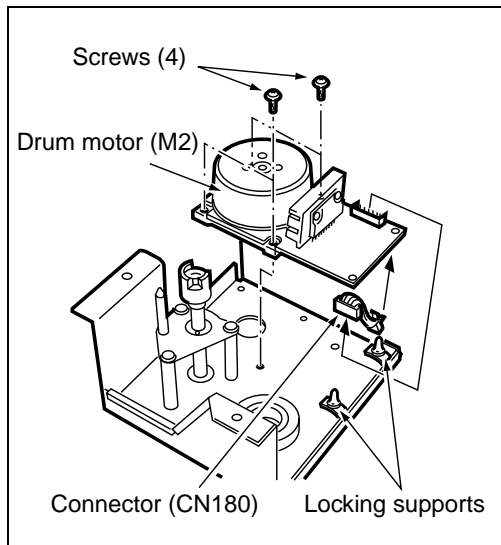


- (5) Disconnect the connector (CN158) and remove the four screws to detach the drum motor unit.



DRIVE SECTION

- (6) Disconnect the connector (CN180) and remove the four screws and two locking supports to remove the drum motor from the drum motor unit.

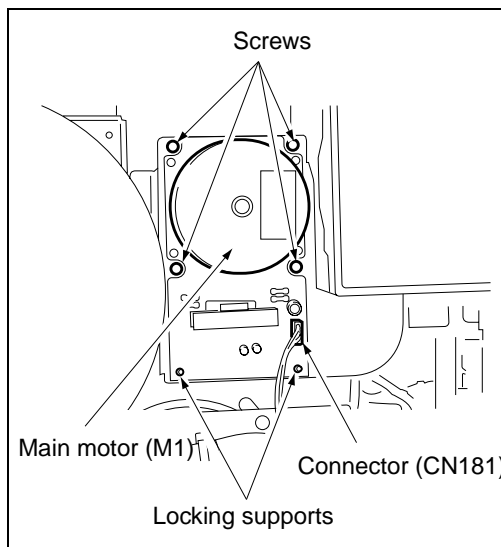


- (7) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the gear holder, set it to fit to the gear, then secure it by the set screw.

[2] Removing and Reinstalling the Main Motor

- (1) Remove the rear cover. (See "EXTERNAL SECTION.")
- (2) Disconnect the connector (CN181).
- (3) Remove the four screws to release the motor board locking supports.
- (4) Remove the main motor (M1) from the main body.



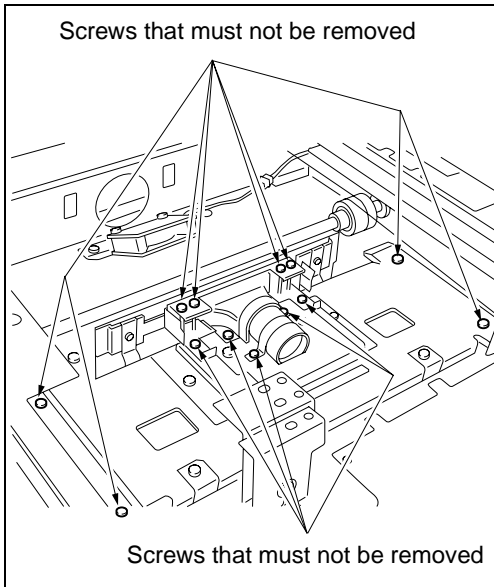
READ SECTION

⚠ Caution:

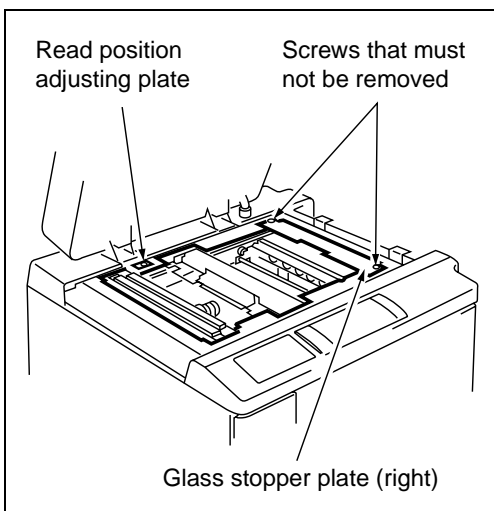
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Screw that Must not be Removed/ Loosened

a. 13 screws securing the CCD unit



b. One screw securing the read position adjusting plate and two screws securing the glass stopper plate (right)

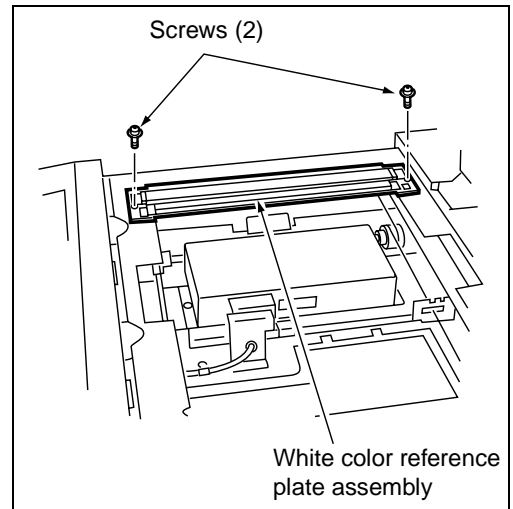


[2] Removing and Reinstalling the CCD Unit

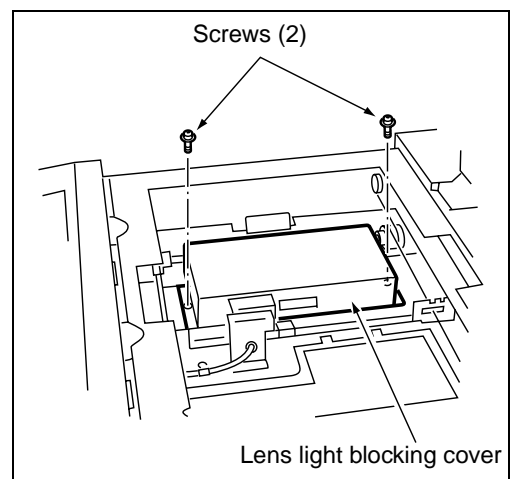
Caution: Be sure to perform image adjustment after installing the CCD unit. (See "ADJUSTMENT.")

a. Procedure

- (1) Remove the original stopper plates (right, rear, and left), platen glass, and top cover (middle). (See "EXTERNAL SECTION.")
- (2) Remove the two screws to detach the white color reference plate assembly.

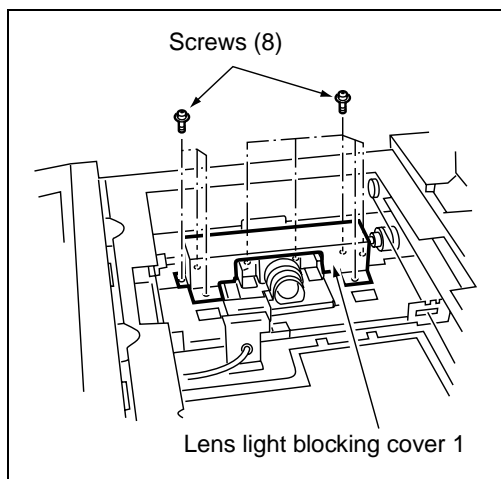


- (3) Remove the two screws to detach the lens light blocking cover 2.

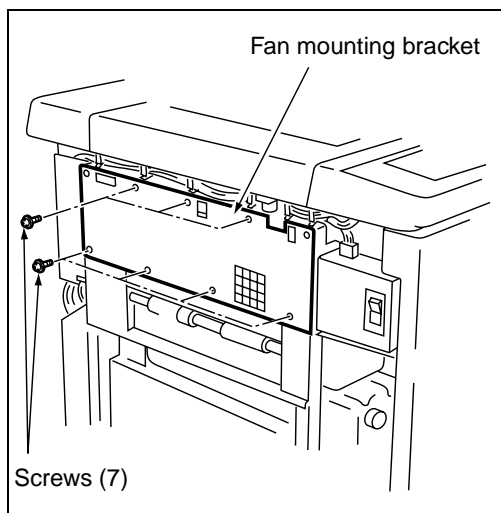


READ SECTION

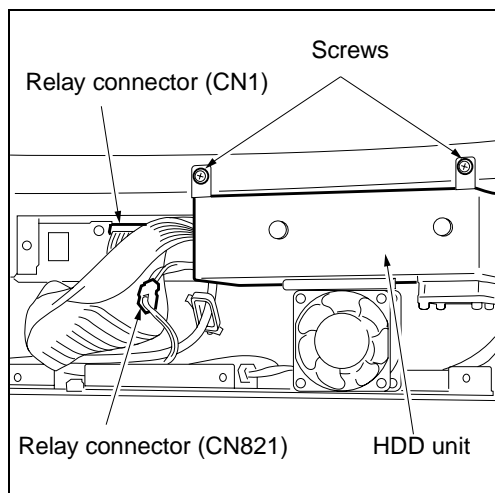
- (4) Remove the eight screws to detach the lens light blocking cover 1.



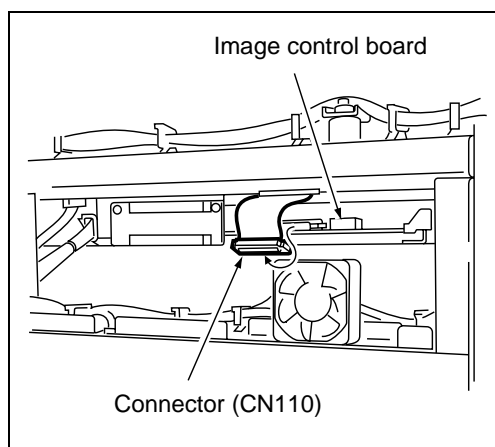
- (5) Remove the left side cover. (See "EXTERNAL SECTION.")
- (6) Remove the seven screws to detach the fan mounting plate.



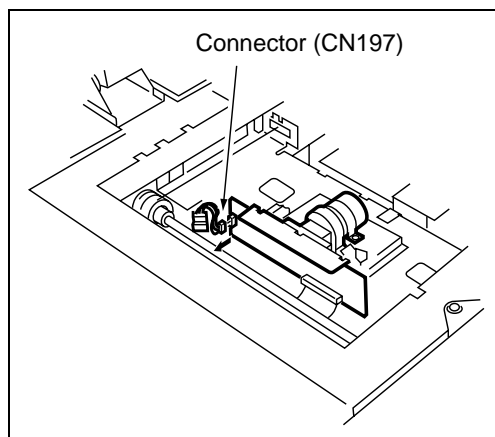
- (7) Remove two relay connectors (CN1, 821).
- (8) Remove two screws and detach the HDD unit.



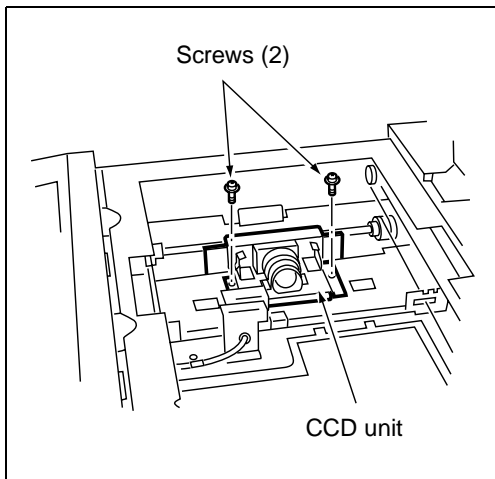
- (9) Disconnect the connector (CN110) from the image control board.



- (10) Disconnect the connector (CN197) from the CCD unit.



- (11) Remove the two screws to detach the CCD unit.



- (12) Reinstall the above parts following the removal steps in reverse.

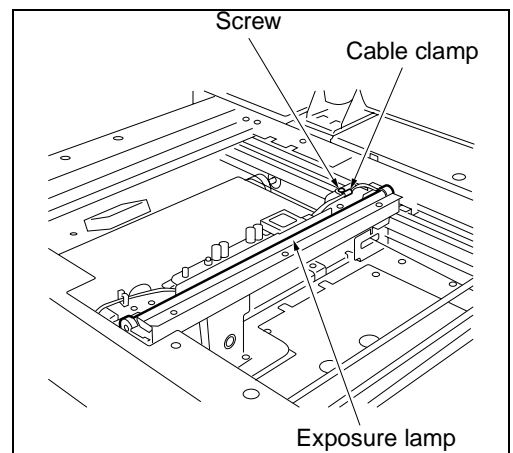
[3] Replacing the Exposure Lamp

⚠ Caution: Do not touch the exposure lamp with bare hands.

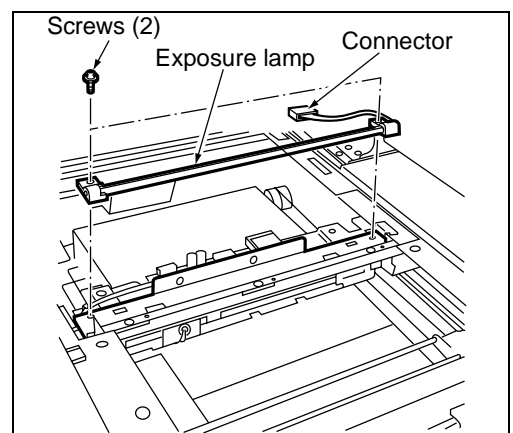
Caution: Be sure to perform image adjustment after installing the exposure lamp.
(See "ADJUSTMENT.")

a. Procedure

- (1) Remove the original stopper plates (right, rear, and left), platen glass, and top cover (middle). See "EXTERNAL SECTION."
- (2) Move the exposure unit to the notch in the main body frame on the paper exit side.
- (3) Remove one screw and detach the cable clamp.



- (4) Remove the connector and two screws to detach the exposure unit.



- (5) Reinstall the above parts following the removal steps in reverse.

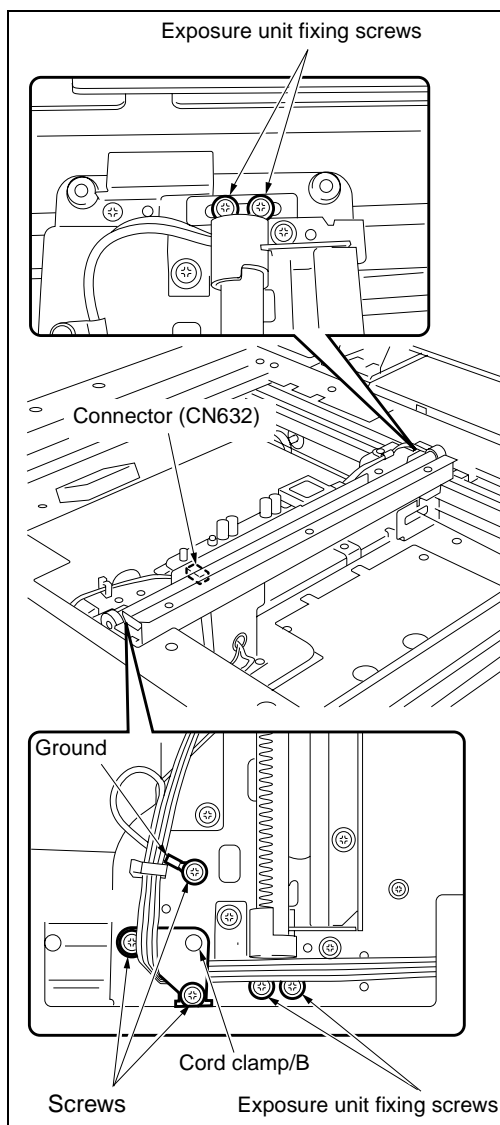
[4] Replacing and Reinstalling the Exposure Unit

Caution1: When installing the exposure unit, use the optical unit position adjusting jig.

Caution2: Be sure to perform image adjustment after installing the exposure lamp. (See "ADJUSTMENT.")

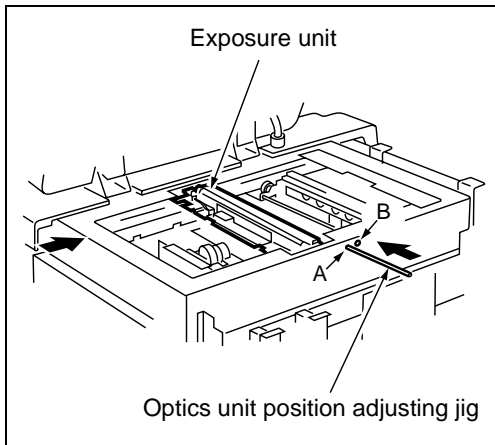
a. Removal procedure

- (1) Remove the original stopper plates (right, rear, and left), platen glass, and top cover (middle). (See "EXTERNAL SECTION.")
- (2) Remove the operation panel. (See "EXTERNAL SECTION.")
- (3) Move the exposure unit to the notch in the main body frame on the paper exit side.
- (4) Remove the two screws to detach the cord clamp (B).
- (5) Remove the screw to remove the ground terminal.
- (6) Disconnect the connector (CN632).
- (7) Remove the four screws to detach the exposure unit.



b. Installation procedure

- (1) Insert the optics unit position adjusting jig in the hole at the exposure unit mounting position (exposure unit fixing hole A) from the front.
- (2) Slide the exposure unit to the paper feed side until it touches the optical unit position adjusting jig.



- (3) Secure the four screws to attach the exposure unit to the optics wire mounting bracket.
- (4) Remove the optics unit position adjusting jig.
- (5) After the procedure (4), reinstall the parts removed in "a. Removal procedure" following the removal steps in reverse.

[5] Installing the Optics Wire

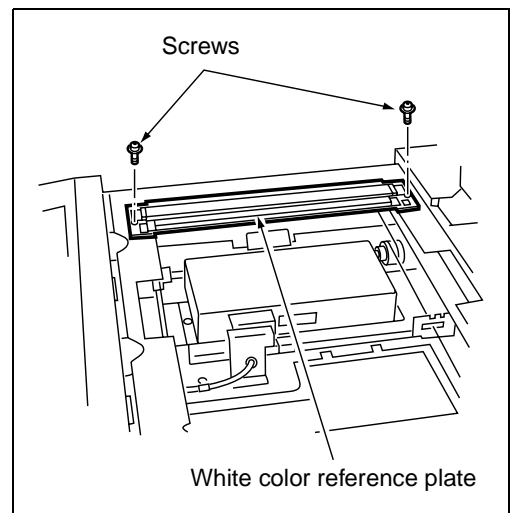
Caution1: When winding the optics wire around the pulley, be sure to run the wire tightly so that it does not ride on the side of the pulley.

Caution2: When re-tensioning or replacing the optics wire, be sure to use the optics position adjusting jig.

Caution3: Be sure to perform image adjustment after replacing or re-installing the wire. (See "ADJUSTMENT.")

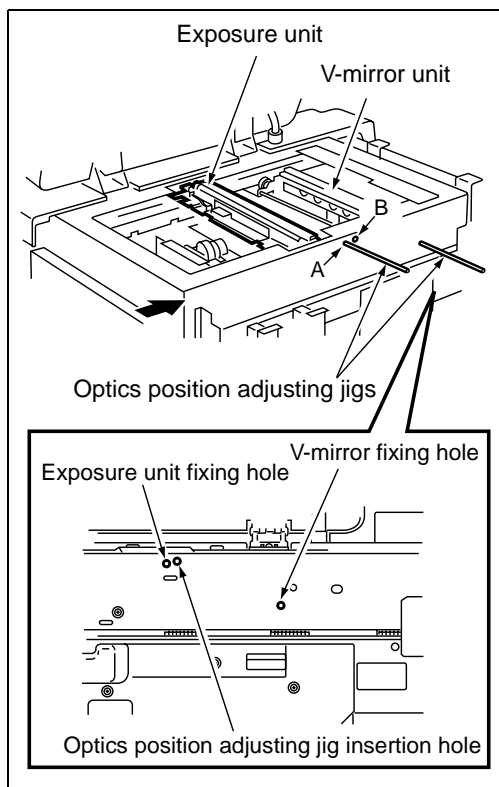
a. Procedure

- (1) Remove the exposure unit.
- (2) Remove the two screws to detach the white color reference plate.



- (3) Move the V-mirror unit toward the paper feed side, then insert the optics position adjusting jigs to the V-mirror fixing holes from the front to secure the V-mirror unit. Ensure that the optics position adjusting jigs pass through the V-mirror unit.

- (4) Insert the optics unit position adjusting jigs in the hole at the exposure unit mounting position (exposure unit fixing hole A) from the front.



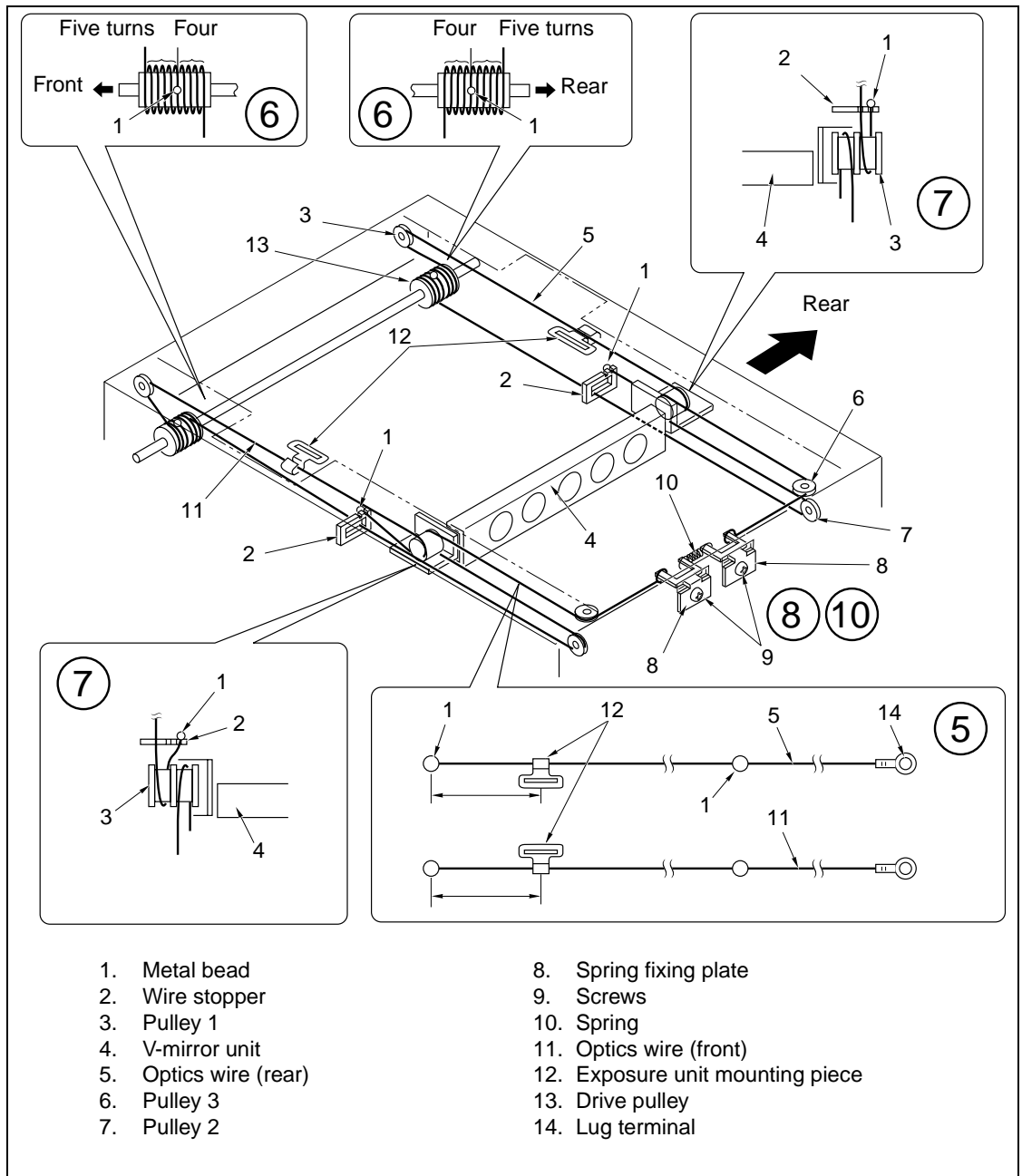
- (5) The exposure unit mounting plate is installed on each optics wire. The position of mounting plate differs depending on whether it is installed on the front or rear wire. Use the wire on which the mounting plate is installed nearer to the metal bead at the end, at the rear.

- (6) Place the metal bead at the midpoint of each optics wire in the mounting hole in the drive pulley. Starting at this point, wind the optics wire five turns to the outside and four times to the inside on the drive pulley.

Caution1: Ensure that there is a metal bead at the end of the outer wire, and a wire terminal at the end of the inner wire.

Caution2: Pull out the outer wire from above the drive pulley in the paper exit direction, and the inner wire from under the drive pulley in the paper feed direction.

- (7) After winding the outer wire, secure it to the wire stopper via the outside of pulley 1 and V-mirror pulley.



Caution: There are two grooves in the wire stopper. Ensure that the outer groove is at the rear and the inner groove is at the front.

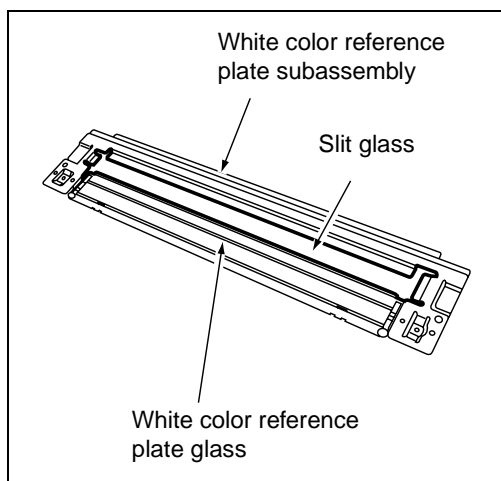
- (8) Pass the inner wire through the notch in the wire stopper, reverse it at pulley 2, pass it along the inside of the V-mirror pulley and pulley 3, then attach the wire terminal to the spring fixing plate.

At this time, secure the spring fixing plate temporarily with one screw.

- (9) Install the other wire following the same procedure.
- (10) Loosen each screw that was tightened temporarily, install the spring on the spring fixing plate, and tighten each screw.

[6] Cleaning the Slit Glass and White Color Reference Plate Glass

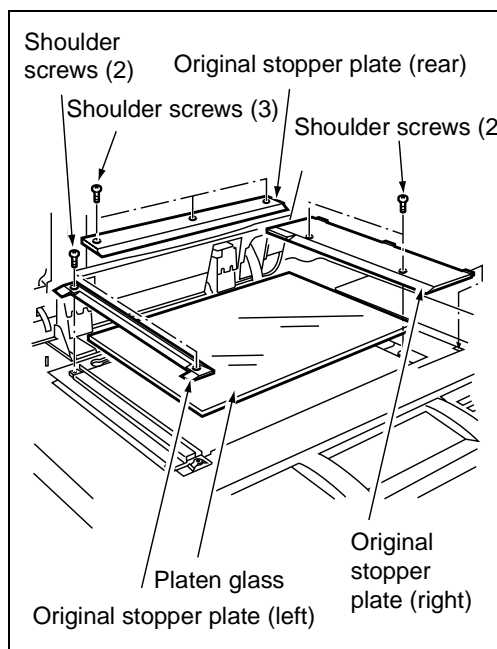
- (1) Open the RADF.
- (2) Remove the original stopper plates (right, rear, and left) and platen glass. (See "EXTERNAL SECTION.")
- (3) Remove the two screws to detach the white color reference plate subassembly.
- (4) Clean the slit glass portions of the removed white color reference plate subassembly and the glass surface of the white color reference plate, using drum cleaner and cleaning pad.



- (5) Reinstall the above parts following the removal steps in reverse.

[7] Cleaning the Platen Glass

- (1) Open the RADF.
- (2) Remove the original stopper plates (right, rear, and left) and platen glass. (See "EXTERNAL SECTION.")
- (3) Place the removed platen glass on the towel or rags and clean it using drum cleaner and cleaning pad.



- (4) Reinstall the above parts following the removal steps in reverse.

WRITE SECTION

⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

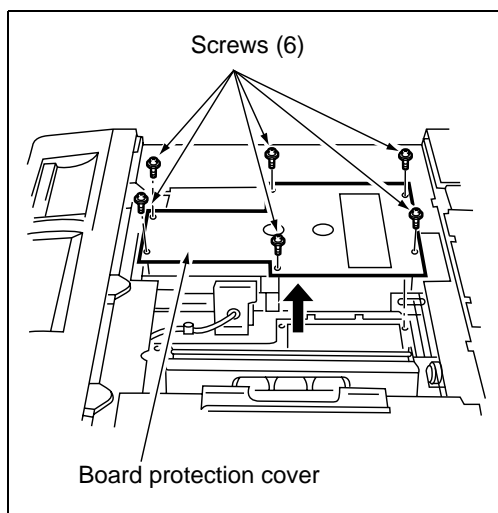
[1] Removing and Reinstalling the Write Unit

⚠ Warning:

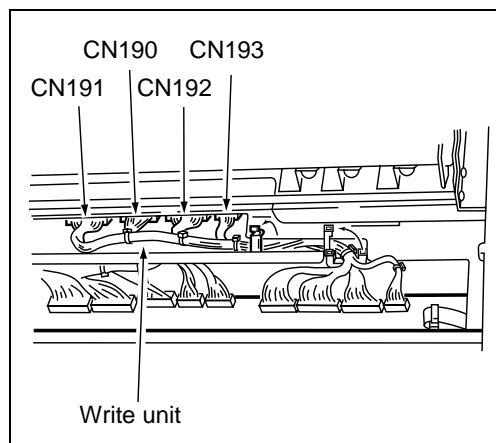
- (1) Do not energize the write unit when it is not in the correct position.
- (2) Never remove the write unit cover and the polygon unit cover.
If the laser beam gets into your eyes, you may lose your sight.
- (3) Never remove the write unit for at least two minutes after turning OFF the main switch.

a. Procedure

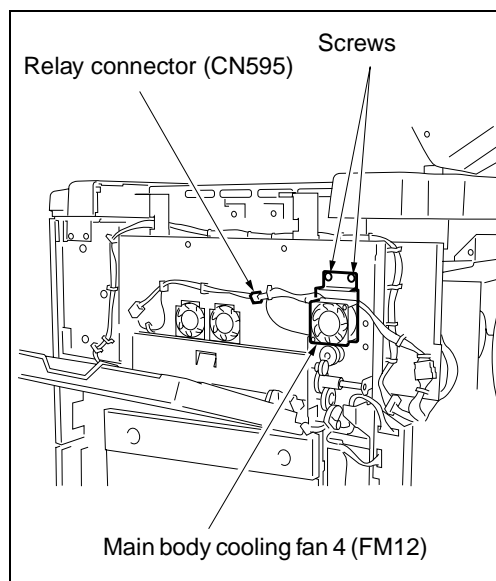
- (1) Remove the original stopper plates (right/rear/left) and platen glass. (See "EXTERNAL SECTION.")
- (2) Remove the six screws to detach the board protection cover.



- (3) Disconnect the four connectors (CN190, 191, 192, and 193) from the write unit.

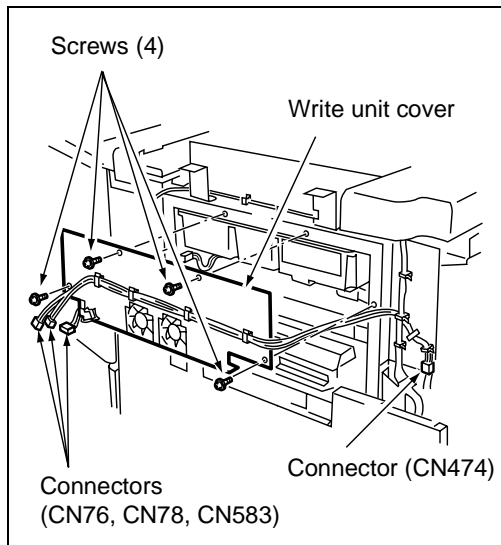


- (4) Remove the right side cover (upper) (by removing the four screws).
- (5) Remove one relay connector (CN595).
- (6) Remove two screws and detach the main body cooling fan 4 (FM12).

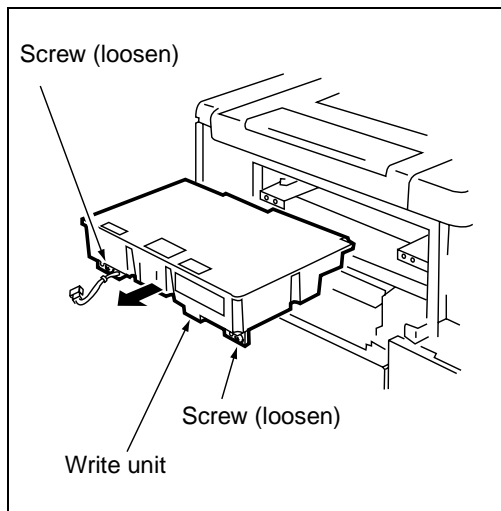


WRITE SECTION

- (7) Disconnect the four connectors (CN76, 78, 471 and 583).
- (8) Remove the four screws to detach the write unit cover.



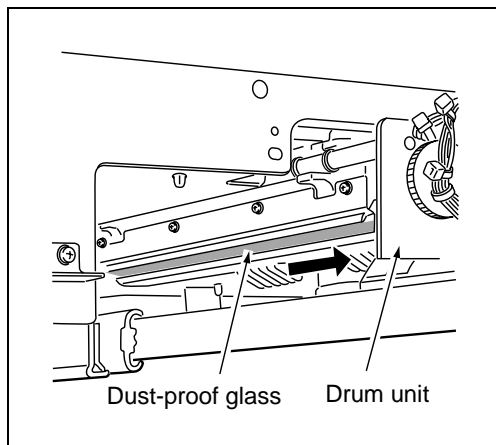
- (9) Loosen the two screws to draw out and remove the write unit.



- (10) Reinstall the above parts following the removal steps in reverse.

[2] Cleaning the Dust-proof Glass**a. Procedure**

- (1) Draw out the drum unit. (See "Drum Unit.")
- (2) Remove the dust-proof glass assembly by drawing it out forward.
- (3) Using a cleaning pad and blower brush, clean the dust-proof glass portions.

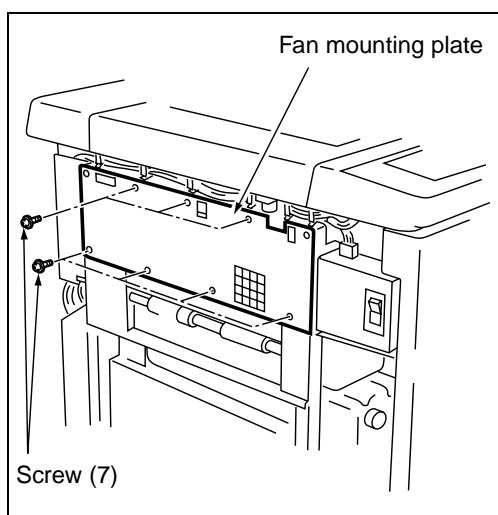


- (4) Reinstall the above parts following the removal steps in reverse.

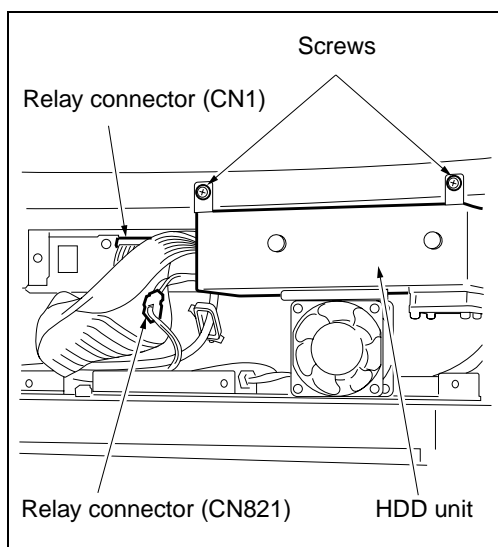
[3] Removing and Reinstalling the Image Control Board

a. Procedure

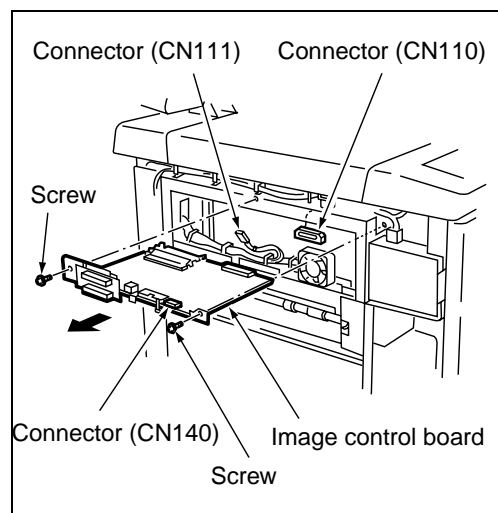
- (1) Remove the left side cover. (See "EXTERNAL SECTION.")
- (2) Remove the seven screws to detach the fan mounting plate.



- (3) Remove two relay connectors (CN1, 821).
- (4) Remove two screws and detach the HDD unit.



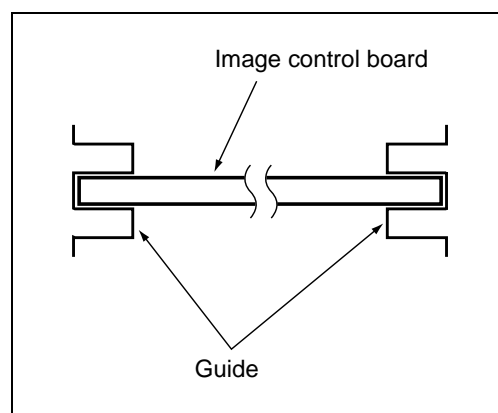
- (5) Remove the CCD flat cable connector (CN110), Ethernet cable connector (CN111), and connector (CN140).
- (6) Remove the two screws and the image control board.



- (7) Reinstall the above parts following the removal steps in reverse.

Caution1: Insert the board along the guides in the main body.

Caution2: Be sure the connector of the board is inserted securely.



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DRUM UNIT

⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Drum Unit

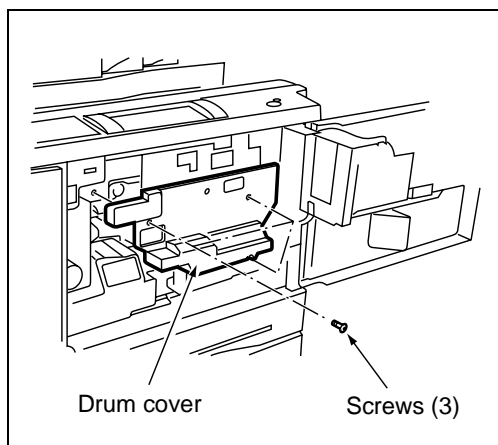
Caution1: Be sure to put a drum cover over the removed drum unit and store the drum unit in a dark place.

Caution2: When installing or removing the drum unit, do not rotate it in the direction opposite to the specified one. Rotating the drum unit in the opposite direction during copy operation could damage the cleaning blade.

Caution3: When installing or removing the drum unit, take care not to touch the separation claw.

a. Procedure

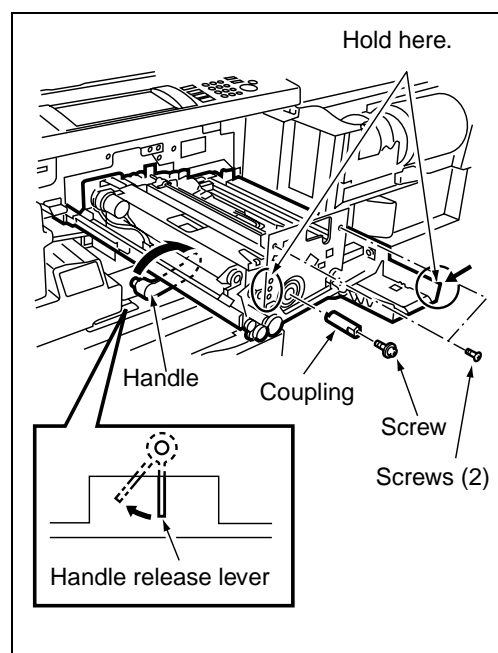
- (1) Open the front right door to draw out the toner supply unit completely. (See "TONER SUPPLY UNIT")
- (2) Loosen three screws and remove the drum cover.



- (3) With the solenoid release lever under the ADU frame held down to the left, turn down the ADU frame drawing lever.
- (4) Remove the two screws securing the drum unit.
- (5) Remove the screw securing the coupling to detach the coupling.
- (6) Supporting the drum unit by hand at the two positions shown below, draw out the drum unit.

Caution1: When drawing out the drum unit, do not grip the pipe in the toner recycle section.

Caution2: When installing and removing the drum unit, perform gripping casing section (following figure A section) but the developer unit.



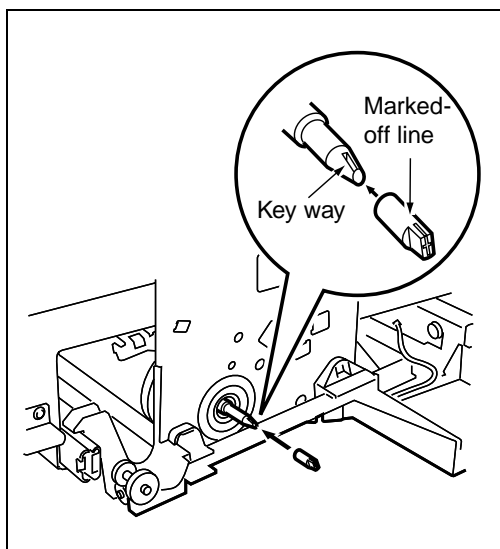
- (7) Reinstall the above parts following the removal steps in reverse.

Caution: For how to install the coupling, see "[2] Installing the Coupling."

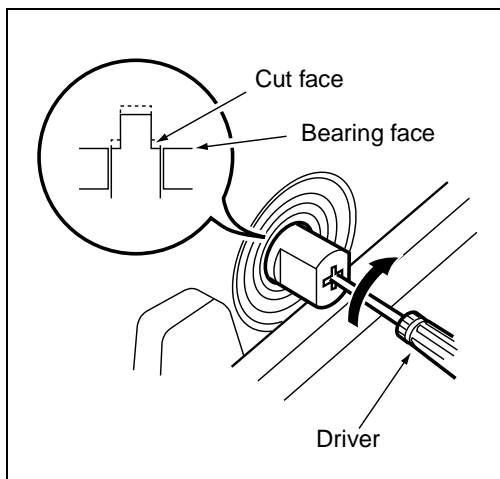
[2] Cleaning and Installing the Coupling

a. Procedure

- (1) Clean the outer surface of the coupling with drum cleaner.
- (2) Aligning the line marked on the coupling with the key way in the drum shaft, push in the coupling by hand.



- (3) While pressing the standard screwdriver tip against the coupling, turn the coupling clockwise until the cut face of the coupling is flush with the bearing face.

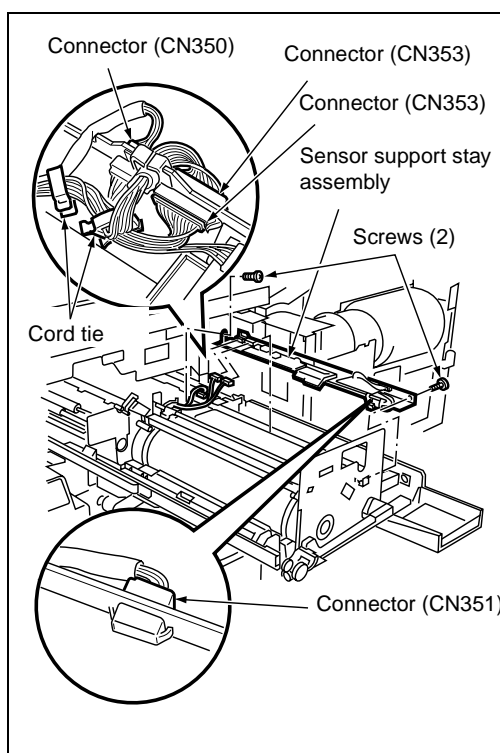


- (4) Tighten the screws.

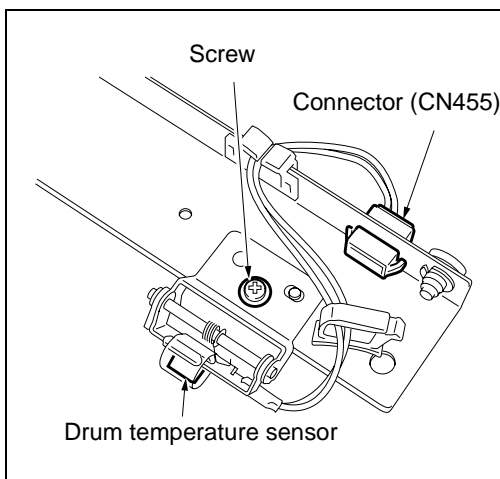
[3] Removing and Reinstalling the Drum Temperature Sensor Board

a. Procedure

- (1) Draw the drum unit out of the main body.
- (2) Disconnect the three connectors (CN350, 351, and 353) and loosen two screws to detach the sensor support stay assembly.



- (3) Remove one connector (CN351) and one screw, and detach the drum temperature sensor.



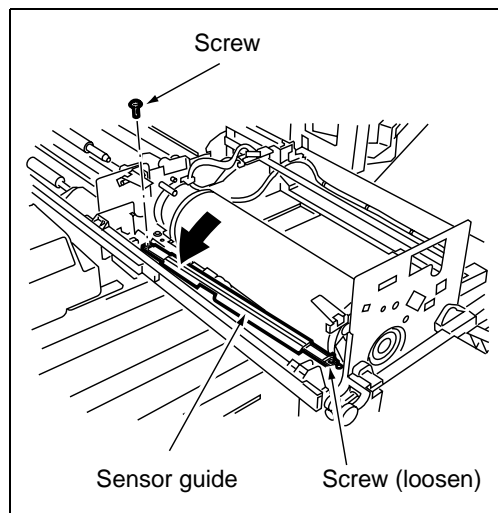
- (4) Reinstall the above parts following the removal steps in reverse.

Caution: After reinstalling the drum temperature sensor board, visually check that the drum temperature sensor is in good contact with the drum.

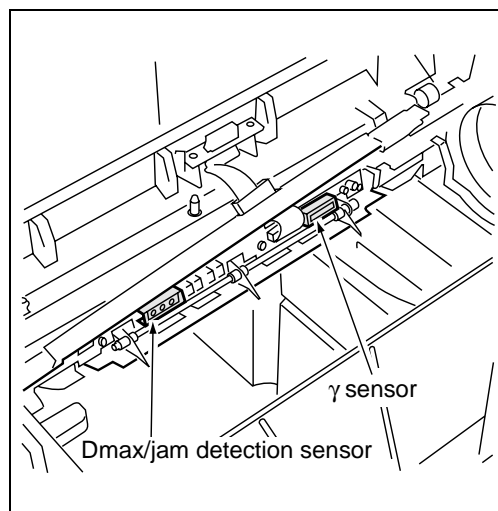
[4] Cleaning the Toner Control Sensor Board

a. Procedure

- (1) Draw the drum unit out of the main body.
- (2) Remove the drum cleaning unit. (See "CLEANING/TONER RECYCLE UNIT.")
- (3) Remove the screw at the back of the sensor guide and loosen the screw at the front to move the sensor guide.



- (4) Clean the sensors on the toner control sensor board (the Dmax/jam detection sensor at the front and the γ sensor at the back) using a blower brush.



[5] Removing, Cleaning and Reinstalling the Drum

Caution1: Be careful not to touch the drum or the cleaning blade with bare hands, or damage these parts.

Caution2: When leaving the drum to stand, be sure to put a drum cover over the drum and store it in a dark place.

Caution3: When reinstalling the drum, cleaning blade and toner guide brush, apply setting powder to the entire surface of the drum and also to the cleaning blade regardless of whether the parts are new or old.

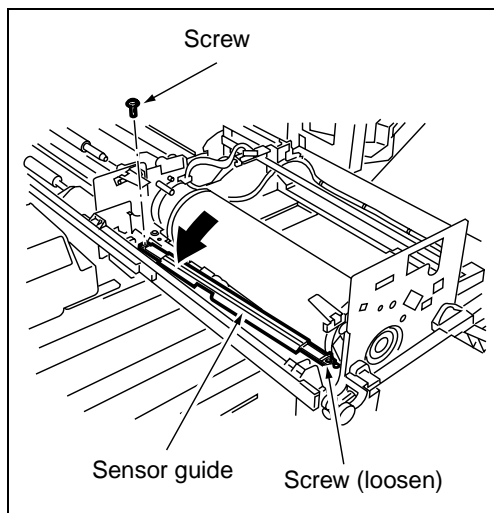
Caution4: After applying setting powder to the drum, carry out the following work before installing the drum unit in the main body.

- (1) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).
- (2) When installing a new drum, be sure to enter the 25 mode and select "Copy Count by Parts to be Replaced" to reset drum counter. (See "ADJUSTMENT.")

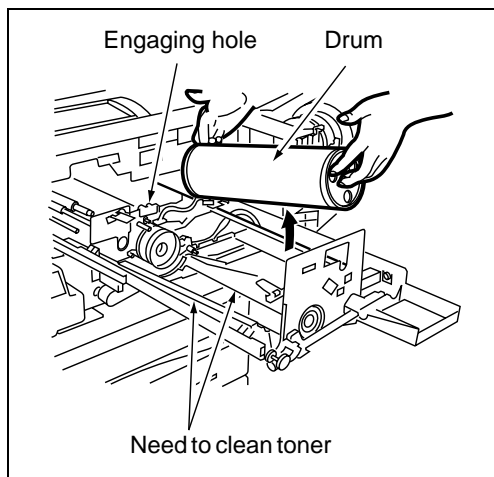
a. Procedure

- (1) Draw the drum unit out of the main body.
- (2) Remove the charging corona unit, developing unit, developing suction assembly drum temperature sensor board, and cleaning unit. (See "CORONA UNIT SECTION," "DEVELOPING UNIT," and "CLEANING/TONER RECYCLE UNIT.")

- (3) Remove the screw at the back of the sensor guide and loosen the screw at the front to move the sensor guide (to prevent the drum from being damaged during reinstallation).



- (4) Supporting the drum at both ends with your fingers so that the drum surface is not damaged, slowly remove it upward (front side first).
- (5) Clean the hole (that engages with the bearing on the rear end of the drum shaft) on the rear side of the drum cartridge with drum cleaner.
- (6) Clean toner scattered around the drum installation area using a blower brush.



- (7) Reinstall the above parts following the removal steps in reverse.

[6] Removing and Reinstalling the Separation Claws

Caution1: Take care not to damage the drum when removing the separation claws.

Caution2: Pay attention to the orientation and position of the separation claws when reinstalling them.

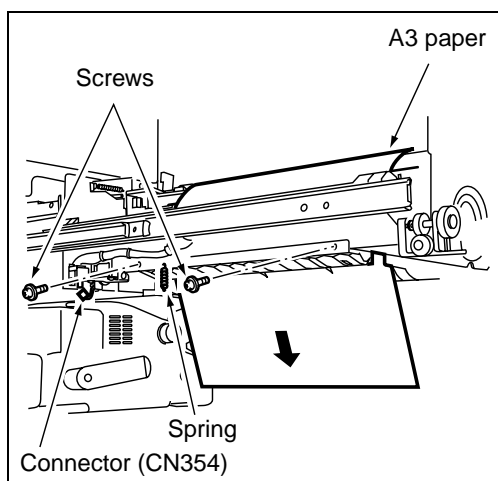
Caution3: Do not touch the cleaning blade and drum with bare hands.

a. Procedure

- (1) Draw the drum unit out of the main body.
- (2) Remove the cleaning/toner recycle unit. (See "CLEANING/TONER RECYCLE UNIT.")
- (3) To protect the drum surface, set A3 paper as shown below.

Caution: After installing the separation claw, remove the A3 paper by pulling it down as shown below.

- (4) Disconnect the connector (CN354), and remove the spring and two screws to detach the separation claw unit.

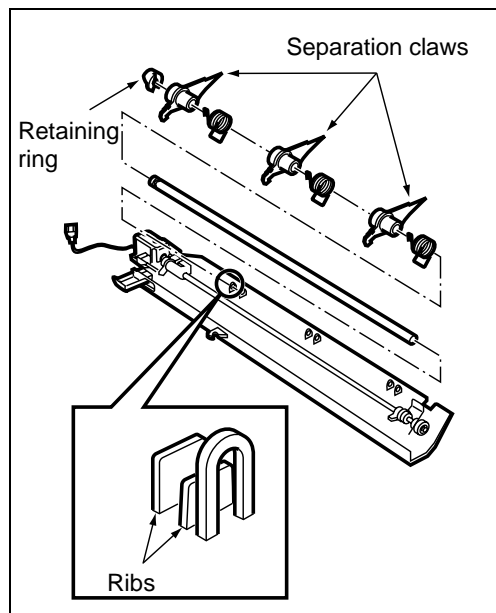


- (5) Remove the retaining ring and slide the shaft to remove the three separation claws.

Caution1: Clean the separation claw drive shaft with alcohol when installing it.

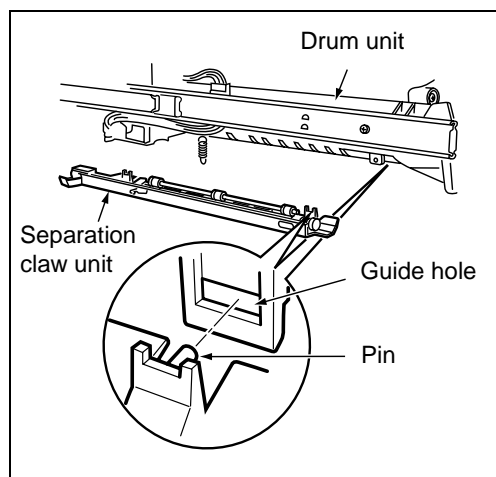
Caution2: Must insert the retaining ring between the ribs.

Caution3: After reinstalling the separation claws, make sure they move smoothly.



- (6) Reinstall the above parts following the removal steps in reverse.

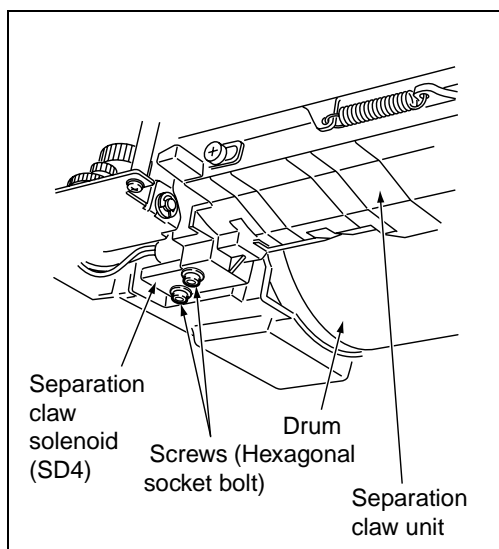
Caution: When installing the separation claw unit, be sure to fit the pin in the guide hole as shown below.



[Reference]

When you removed the separation claw unit (you need not remove it usually but you need to remove it only when replacing the solenoid), install it in the following manner:

- (1) Install the separation claw unit in the drum cartridge.
- (2) Tighten the solenoid screw when one of the separation claws, which is closest to the drum, contacts the drum. (Hexagonal socket bolt M3)



- (3) Set the drum cartridge in the main body and check the tips of the separation claws are off the drum surface.

Standard value of clearance: More than 0 mm up to 1 mm inclusive

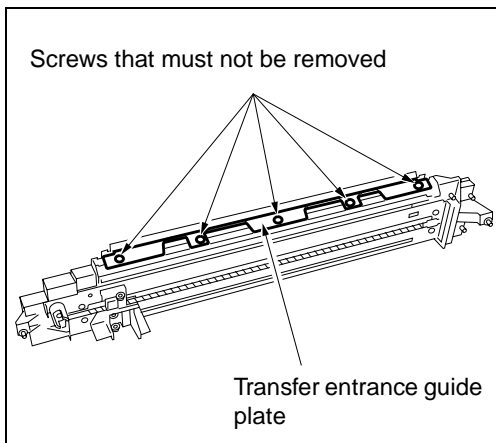
CORONA UNIT SECTION

⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Screws that Must not be Removed/ Loosened

- a. Five screws securing the transfer entrance guide plate



Caution1: Do not strain the transfer entrance guide plate and guide rollers, for example, pressing down on them strongly, when removing the charging corona unit.

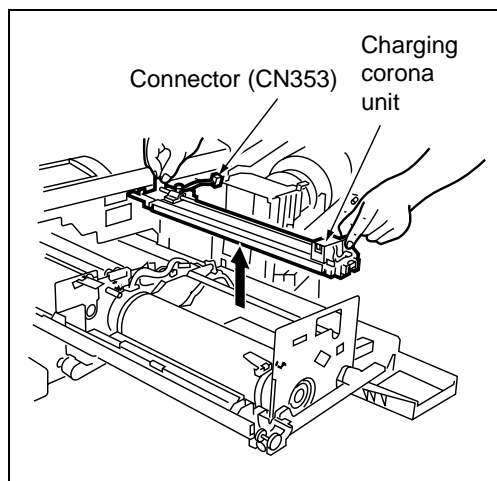
Caution2: Take care not to damage the edge of the transfer entrance guide plate since it is deformed easily.

[2] Removing and Reinstalling the Charging Corona Unit

Caution: When removing the charging corona unit, do not touch the mesh of the charge control plate.

a. Procedure

- (1) Remove the drum unit from the main unit. (See "DRUM UNIT.")
- (2) Disconnect the connector (CN353). Holding the charging corona unit at the positions shown below with both hands, remove it.



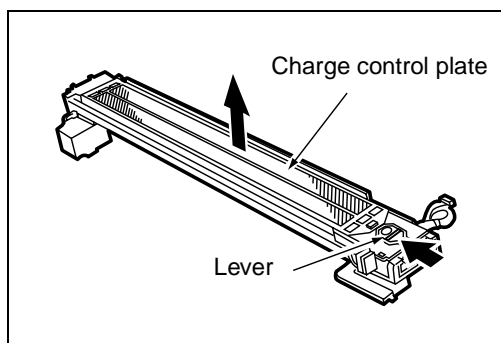
- (3) Reinstall the above parts following the removal steps in reverse.

[3] Removing and Reinstalling the Charge Control Plate

a. Procedure

- (1) Remove the charging corona unit.
- (2) Press the lever in the direction of the arrow to release the lock, then remove the charge control plate.

Caution: Do not loosen or tighten the screws securing the lever.



- (3) Reinstall the above parts following the removal steps in reverse.

[4] Replacing the Charging Wires

⚠ Caution: Be sure the power cord has been unplugged from the wall outlet.

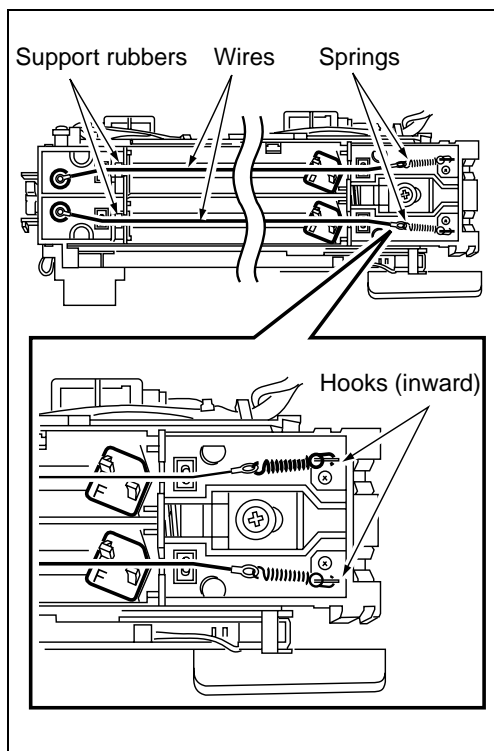
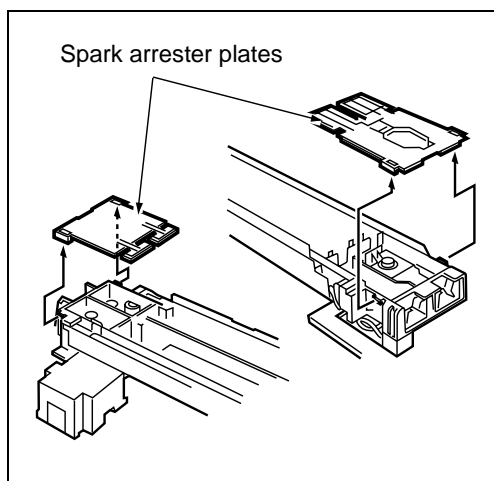
a. Procedure

- (1) Remove the charging corona unit.
- (2) Remove the charge control plate.
- (3) Remove the spark arrester plates (front and rear).

- (4) Remove the springs of wires (one each) to remove the wires.

Caution1: Do not drop or lose the support rubbers when removing wires.

Caution2: Reinstall wires so that their hooks are inside.



- (5) Reinstall the above parts following the removal steps in reverse.

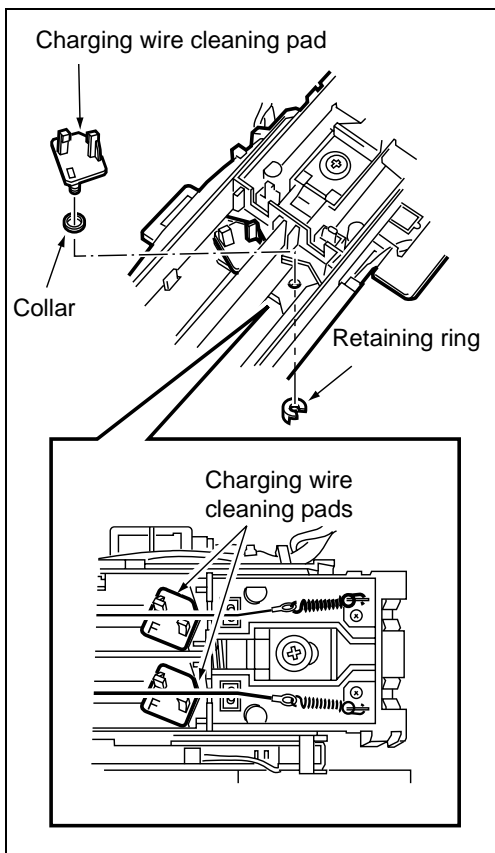
[5] Removing and Reinstalling the Charging Wire Cleaning Pad

a. Procedure

- (1) Remove the two charging wires.
- (2) Remove the two retaining rings to remove the charging wire cleaning pads.

Caution1: Take care not to drop or lose the lower collars when removing the charging wire cleaning pads.

Caution2: When reinstalling the charging wire cleaning pads, pay attention to the orientation shown below. Do not forget to attach the collars.

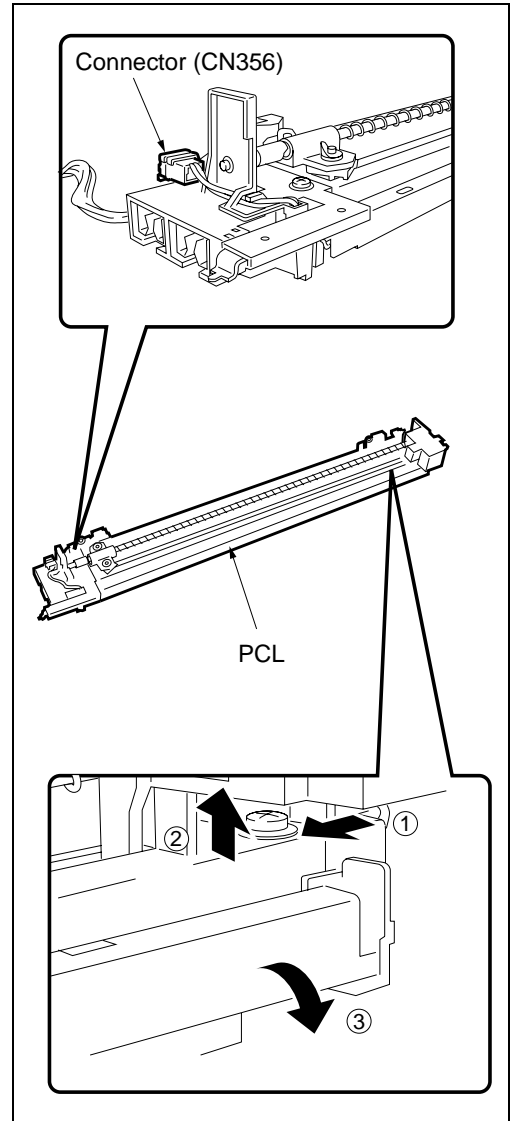


- (3) Reinstall the above parts following the removal steps in reverse.

[6] Removing and Reinstalling the PCL

a. Procedure

- (1) Remove the charging corona unit.
- (2) Disconnect the connector (CN356) of the PCL and release the lock to remove the PCL.



- (3) Reinstall the above parts following the removal steps in reverse.

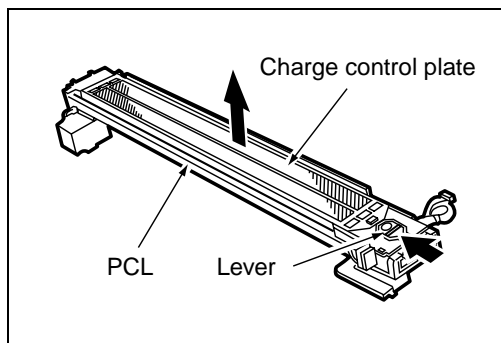
[7] Cleaning the Charging Corona Unit/ PCL

a. Procedure

- (1) Remove the charging corona unit.
- (2) Remove the charge control plate and PCL.
- (3) Place the charge control plate on a flat place and clean its surface with light taps of the cleaning pad moistened with drum cleaner. Next, remove any remaining dirt with a blower brush.

Caution: Take care not to damage the mesh of the charge control plate during cleaning.

- (4) Clean the PCL with a cleaning pad moistened with drum cleaner.

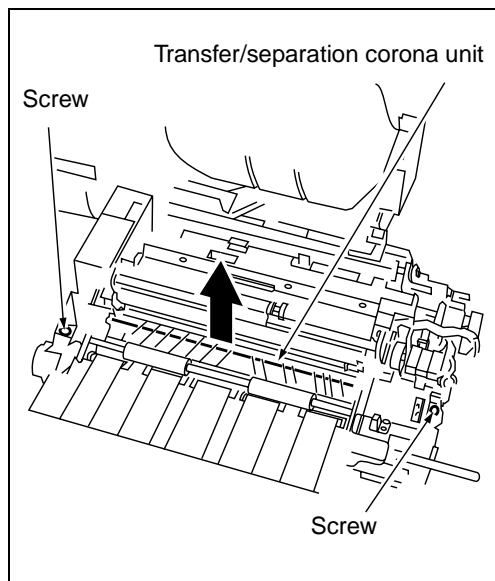


[8] Removing and Reinstalling the Transfer/Separation Corona Unit

a. Procedure

- (1) Open the toner supply unit. (See "TONER SUPPLY UNIT.")
- (2) Detach the ADU cover. (See "ADU UNIT.")
- (3) Loosen the two screws to remove the transfer/separation corona unit.

Caution: Hold the block section of the transfer/separation corona unit.



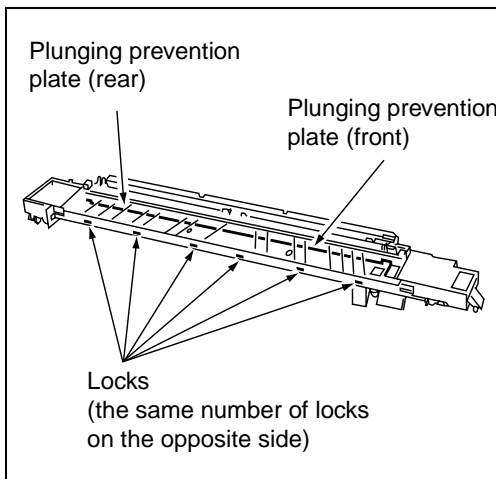
- (4) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the transfer/separation corona unit, make sure the cleaning gear coupling is engaged properly.

[9] Removing and Reinstalling the Plunger Prevention Plate

a. Procedure

- (1) Open the toner supply unit. (See "TONER SUPPLY UNIT.")
- (2) Draw the ADU frame out of the main body. (See "ADU UNIT.")
- (3) Remove the transfer/separation corona unit.
- (4) Release the six locks and detach the plunger prevention plate (front) (rear).



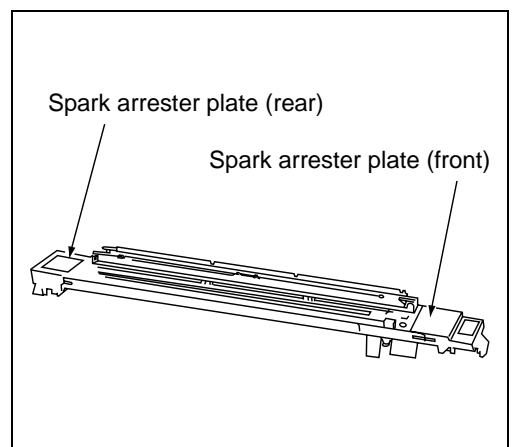
- (5) Reinstall the above parts following the removal steps in reverse.

Caution: Make sure that the locking claws are securely fit into the backplate holes.

[10] Replacing the Transfer/Separation Wires, Transfer/Separation Wire Cleaning Block and Support Rubbers

a. Procedure

- (1) Open the toner supply unit. (See "TONER SUPPLY UNIT.")
- (2) Draw the ADU frame out of the main body. (See "ADU UNIT.")
- (3) Remove the transfer/separation corona unit.
- (4) Remove the plunger prevention plate.
- (5) Remove the spark arrester plates (front and rear).

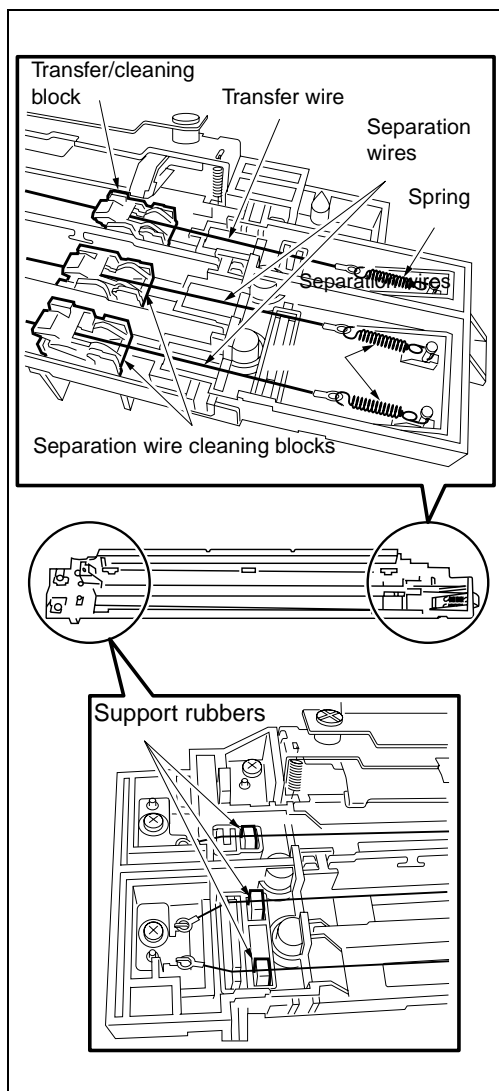


- (6) Remove the springs of wires (one each) to remove the wires.

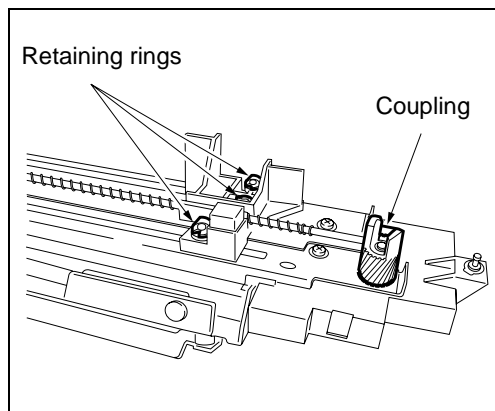
Caution: When installing the springs, bend the edge of each spring in side.

CORONA UNIT SECTION

- (7) Remove the three wires from cleaning blocks along with support rubbers.



- (8) Turn the transfer/separation corona unit upside down, remove the three retaining rings, and remove the transfer wire cleaning block and two separation wire cleaning block from the front side.



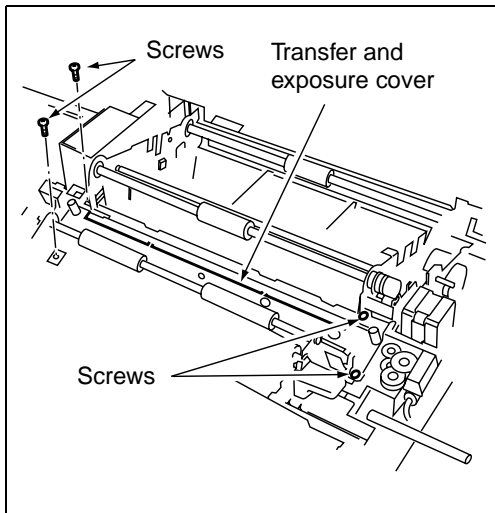
- (9) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the transfer/separation wires, check the coupling of the cleaning pad drive gear is engaged correctly.

[11] Removing and Reinstalling the TSL Unit

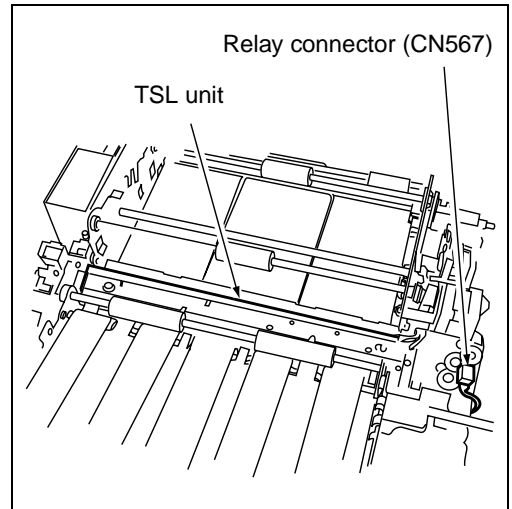
a. Procedure

- (1) Open the toner supply unit. (See "TONER SUPPLY UNIT.")
- (2) Draw the ADU frame out of the main body. (See "ADU UNIT.")
- (3) Remove the transfer/separation corona unit.
- (4) Remove the ADU cover. (See "ADU UNIT")
- (5) Remove the four screws to remove the transfer exposure cover.



- (6) Disconnect the relay connector (CN567) to remove the TSL unit.

Caution: Each relay connector consists of a male side and a female side. Be sure to remove only the male side (shown below) of the CN567 connector.



- (7) Reinstall the above parts following the removal steps in reverse.

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DEVELOPING UNIT

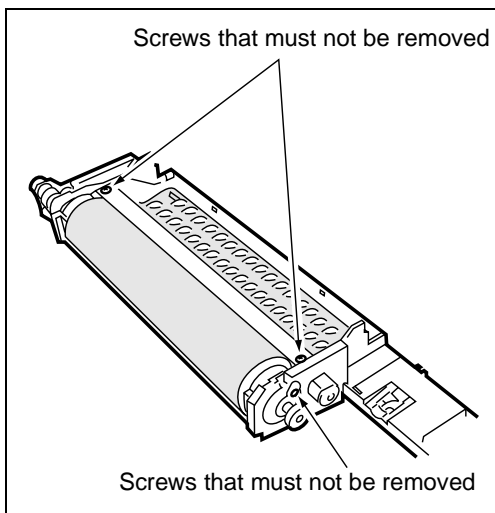
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Screws that must not be Removed/ Loosened

a. Procedure

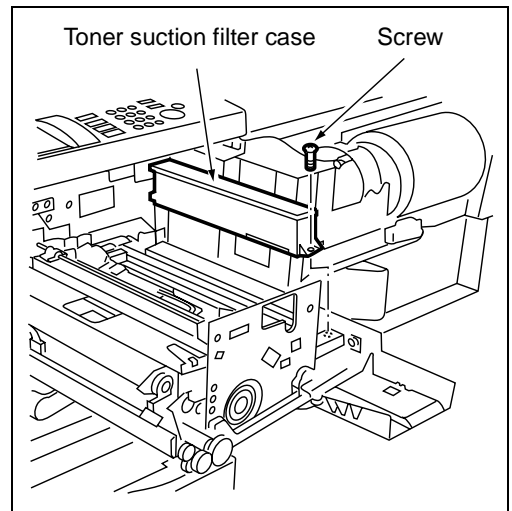
- (1) Two screws securing the toner transfer regulation plate.
- (2) One screw securing the magnet angle adjusting knob.



[2] Removing and Reinstalling the Developing Unit

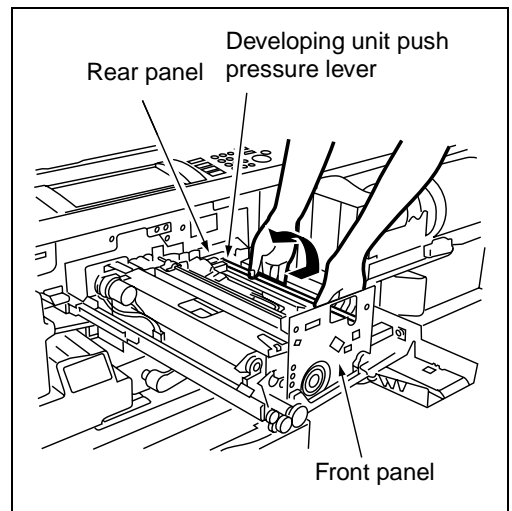
a. Procedure

- (1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
- (2) Remove the screw to remove the toner suction filter case.



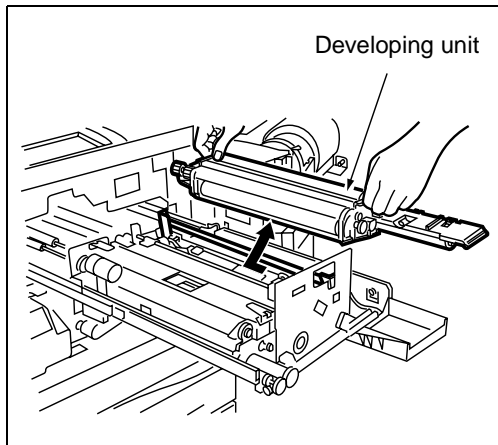
- (3) Release the developing unit push pressure lever.

Caution: When releasing the push pressure lever, do not touch the front and rear panels of the drum unit.



DEVELOPING UNIT

- (4) Supporting the developing unit at the positions shown below with both hands, remove it from the drum unit.



- (5) Reinstall the above parts following the removal steps in reverse.

Caution1: When installing the developing unit, assure that the toner transfer sleeve does not contact with the front panel of the drum unit.

Caution2: Never rotate the developing gear clockwise.

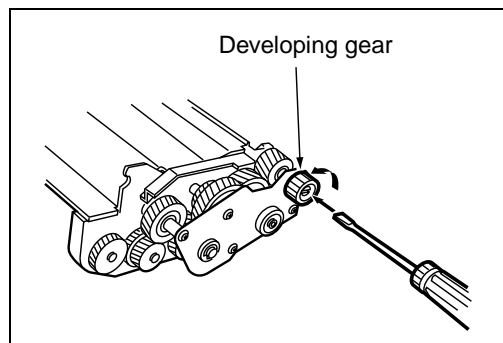
[3] Replacing the Developer

Caution1: When replacing the developer in the developing unit, take care not to allow dirt to get into it.

Caution2: To rotate the developing sleeve, rotate the developing gear counter-clockwise using a standard screwdriver.

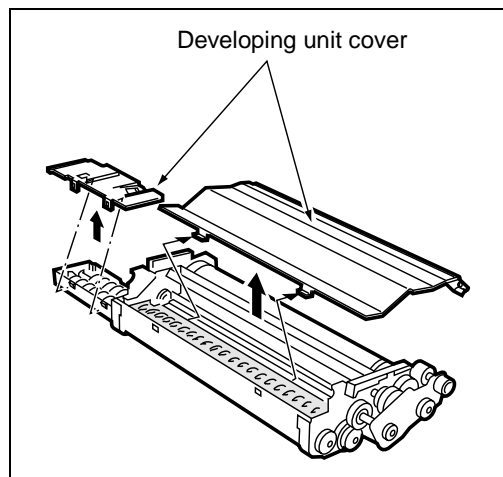
Caution3: Never rotate the developing gear clockwise.

Caution4: When replace the developing, be sure to enter the 25 mode and select "Copy Count by Parts to be Replaced" to reset developer counter.

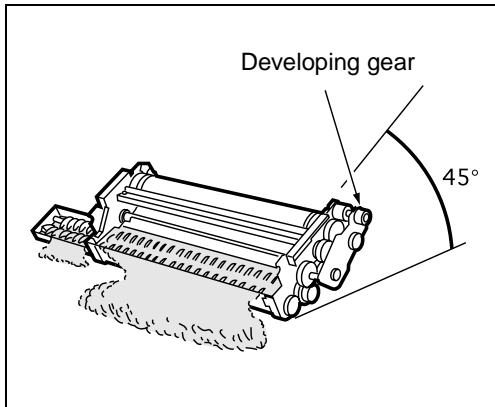


a. Procedure

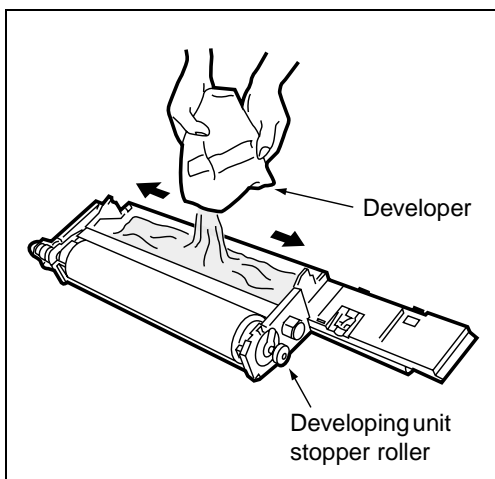
- (1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
- (2) Remove the developing unit from the drum unit.
- (3) Release the hooks of the developing unit cover and remove it upward.



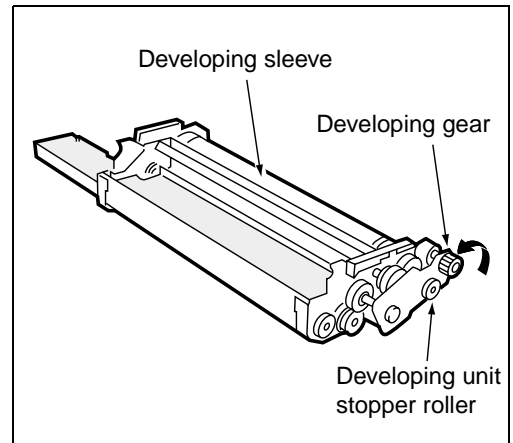
- (4) Tilt the developing unit about 45° and rotate the developing gear counterclockwise using a standard screwdriver to discharge all of the developer adhering to the inside of the developing unit and magnet roller.



- (5) Supply fresh developer evenly from the top of the agitator screws.
 (6) Rotate the developing gear until the developer enters the developing unit.
 (7) Perform steps (5) and (6) repeatedly to supply all of the developer.



- (8) Rotate the developing gear counterclockwise to check that the developer bristles along the entire length of the toner transfer sleeve.



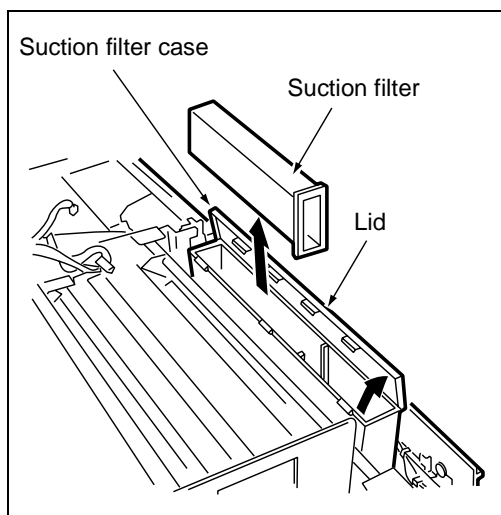
- (9) Install the developing unit cover, then install the developing unit in the drum unit.

Caution: After installing the developing unit in the drum unit, make sure the developing unit stopper roller is in contact with the developing unit stopper plate (allocation of DSD).

[4] Removing and Reinstalling the Developing Suction Filter

a. Procedure

- (1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
- (2) Open the lid of the developing suction filter case and remove the suction filter.



- (3) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the developing suction filter, assure that the lid of developing suction filter is closed completely.

TONER SUPPLY UNIT

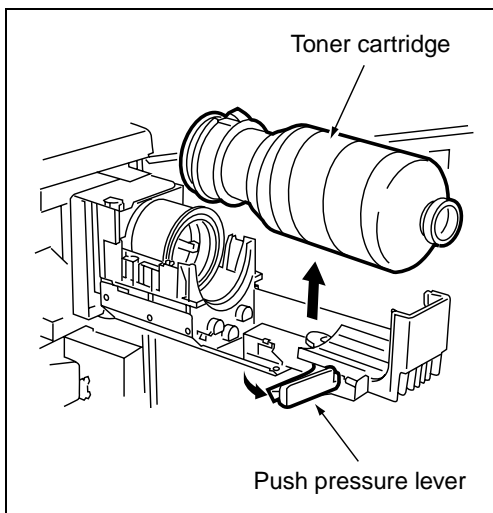
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Replacing and Cleaning the Toner Cartridge

a. Procedure

- (1) Open the front left and right doors to pull forward the toner supply unit.
- (2) Pull out the toner cartridge locking lever to remove the toner cartridge.



- (3) After removing the toner cartridge, clean the area around the toner cartridge insertion hole with a cleaning pad.
- (4) Reinstall the above parts following the removal steps in reverse.

[2] Drawing out the Toner Supply Unit

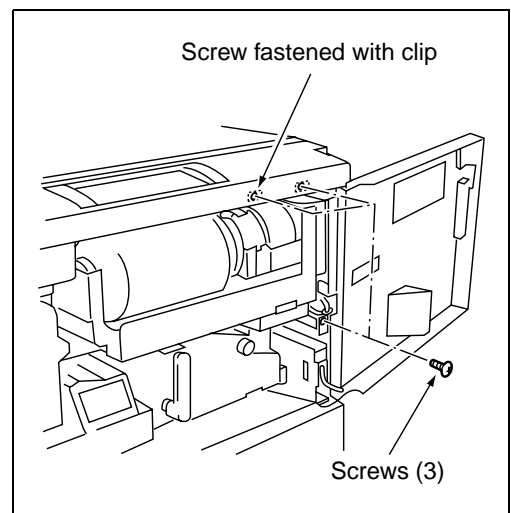
⚠ Warning: The hinge used in the toner supply unit mounting section moves in two steps. Take care not to get your finger caught in the hinge when drawing out the toner supply unit.

- ⚠ Caution: 1. When setting the toner supply unit, do not apply excessive force in the vertical direction.
2. After removed the screws, make sure that the shutter of the supply hole is open.
3. Before setting the toner supply unit (supply hole joint), be sure to tighten the two screws other than the screws fastened with clip.

a. Procedure

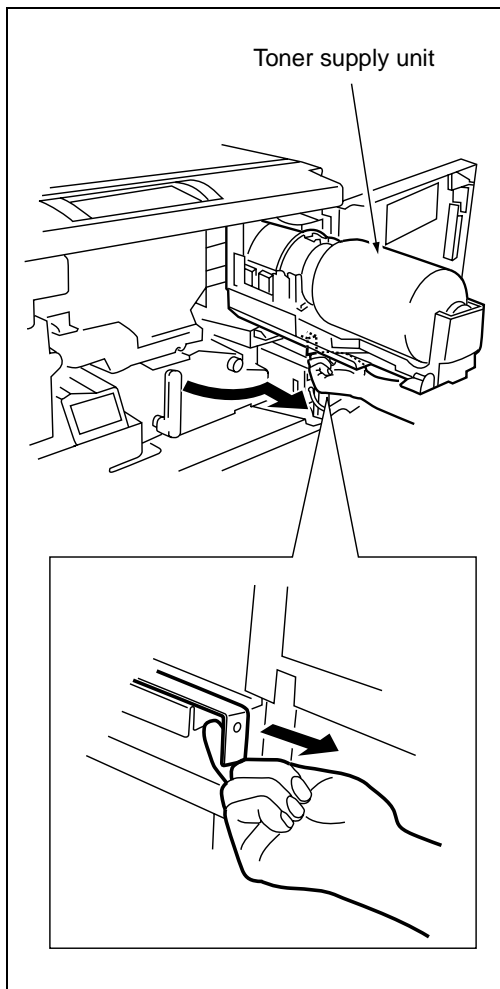
- (1) Open the front left and right doors.
- (2) Remove the three screws.

Caution: The upper left (rear) screw is not removed because it is fastened with a clip. Loosen it completely.



TONER SUPPLY UNIT

- (3) Pull forward the toner supply unit. Gripping the portion shown below, pull out the unit completely.

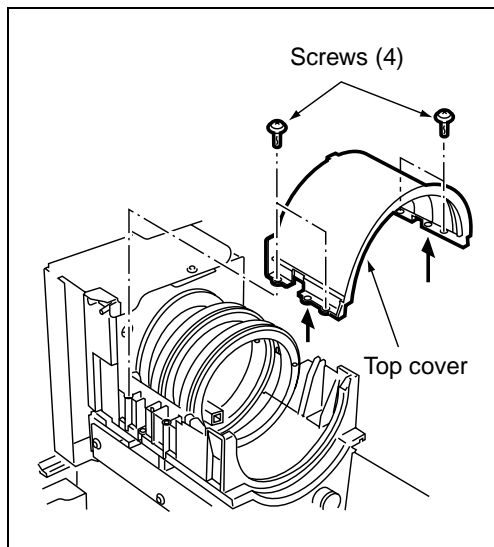


- (4) Reinstall the above parts following the removal steps in reverse.

[3] Removing and Reinstalling the Toner Supply Sleeves 1 and 2

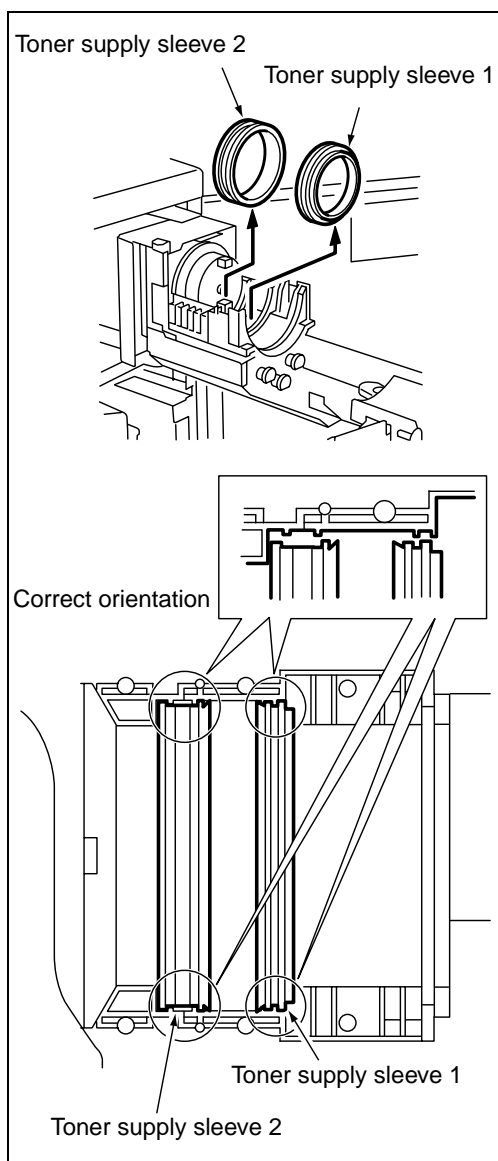
a. Procedure

- (1) Pull out the toner supply unit completely.
- (2) Remove the toner cartridge.
- (3) Remove the four screws to detach the top cover.



- (4) Remove toner supply sleeves 1 and 2.

Caution: Toner supply sleeves 1 and 2 must be installed observing the correct orientation shown below.



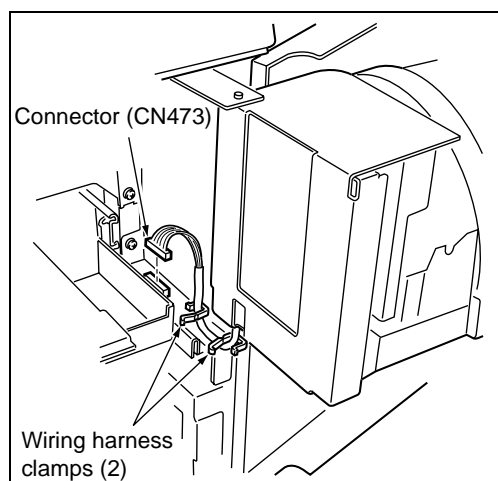
- (5) Reinstall the above parts following the removal steps in reverse.

[4] Removing and Reinstalling the Toner Supply Unit

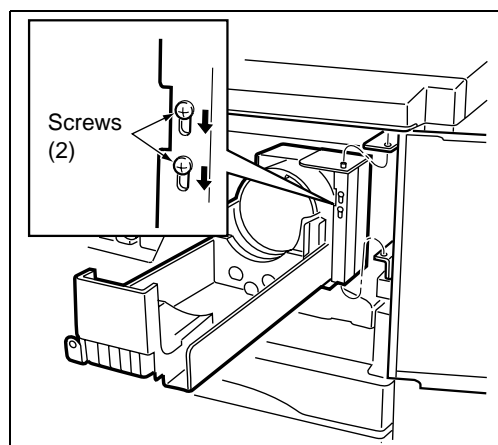
a. Procedure

- (1) Pull out the toner supply unit completely.
- (2) Remove the toner cartridge.
- (3) Disconnect the connector (CN473) and remove the wiring harness from the four wiring harness clamps.

Caution: Route the wiring harness carefully when reinstalling the toner supply unit, because it is a movable component.



- (4) Loosen the two screws to remove the toner supply unit.



- (5) Reinstall the above parts following the removal steps in reverse.

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CLEANING/TONER RECYCLE UNIT

⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Cleaning/Toner Recycle Unit

⚠ Caution: Be sure the power cord has been unplugged from the wall outlet.

Caution1: Do not touch the edges of the cleaning blade with bare hands.

Caution2: Before reinstalling the cleaning unit, clean the cleaning/toner recycle unit with a blower brush and cleaning pad.

Caution3: When reinstalling the cleaning unit, apply setting powder to the entire surface of the drum and cleaning blade regardless of whether the drum and cleaning blade are new or old.

Caution4: When you have applied setting powder to the drum, carry out the following work before installing the drum unit on the main body:

- (1) To ensure accurate toner concentration, wipe scattered setting powder off the γ and Dmax sensors on the toner control sensor board with a rag moistened with alcohol.
- (2) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).

a. Procedure

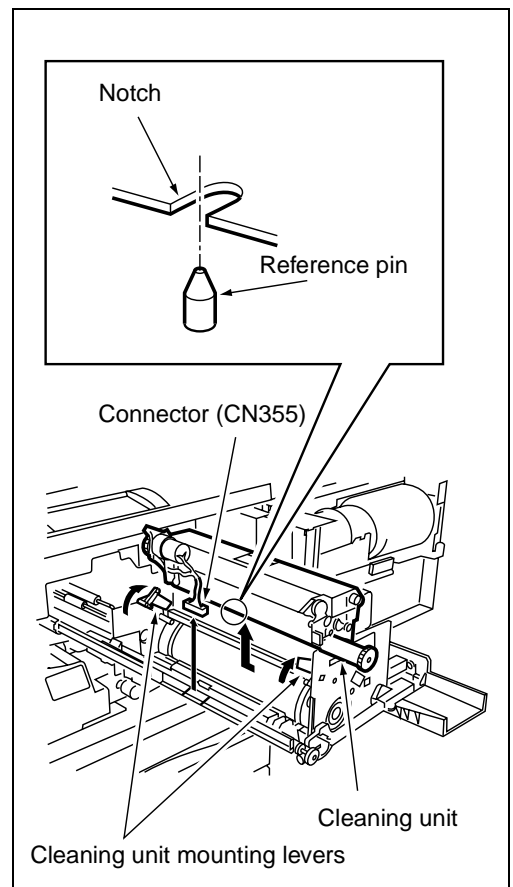
- (1) Manually turn the drum once.

Caution: Must turn the drum once to prevent toner on the brush falling.

- (2) Draw out the drum unit from the main body. (See "DRUM UNIT.")
- (3) Release cleaning unit release levers (on both sides).
- (4) Disconnect one connector (CN355) and remove the cleaning unit.

Caution1: Remove the cleaning unit with its rear surface aligned with the ribs of the drum cartridge. (Tilt the cleaning unit approximately 15 degree.)

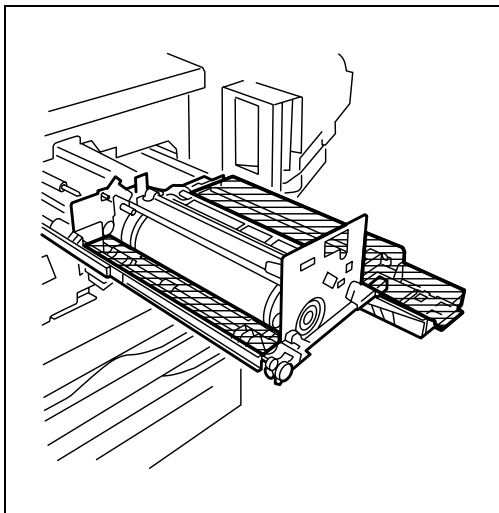
Caution2: Remove the cleaning unit with drum cartridge reference pin in line with the notch of the cleaning unit.



- (5) Reinstall the above parts following the removal steps in reverse.

[2] Cleaning the Cleaning/Toner Recycle Unit**a. Procedure**

- (1) Remove the cleaning unit.
- (2) Clean the areas shown below with a blower brush and cleaning pad.

**[3] Removing and Reinstalling the Cleaning Blade**

Caution1: Be sure to replace the following parts at the same time:

- Toner cleaning blades 1 and 2
- Toner guide brush/plunging prevention felt

Caution2: Do not touch the edges of the cleaning blade with bare hands.

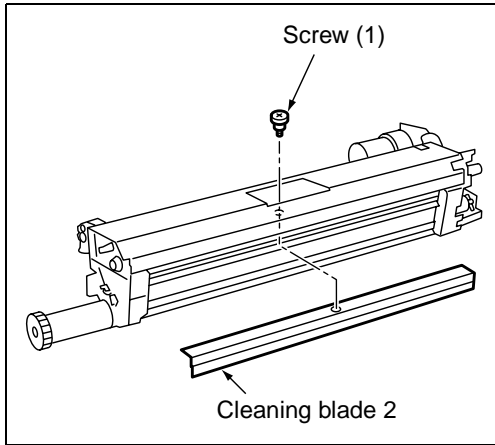
Caution3: When reinstalling the cleaning blade, apply setting powder to the entire surface of the drum and cleaning blade regardless of whether the drum and cleaning blade are new or old.

Caution4: When you have applied setting powder to the drum, carry out the following work before installing the drum unit on the main body:

- (1) To ensure accurate toner concentration, wipe scattered setting powder off the γ and Dmax sensors on the toner control board with a rag moistened with alcohol.
- (2) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).

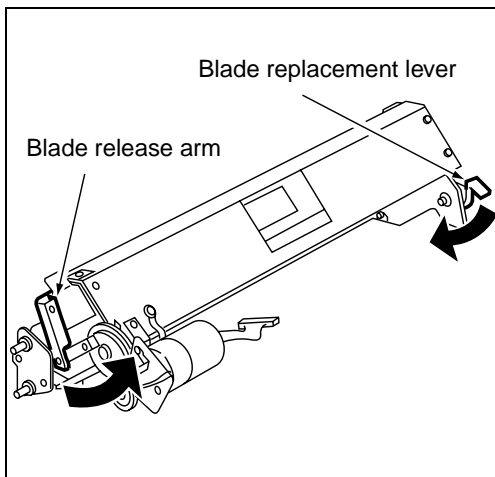
a. Procedure

- (1) Remove the cleaning unit.
- (2) Remove one screw to detach cleaning blade 2.



- (3) Clean the inside of the cleaning unit with a cleaning pad and blower brush.
- (4) Install two new cleaning blades.
- (5) Pull the blade release arm in the direction as indicated by arrow in the following figure.
- (6) Rotate the blade replacement lever all the way in the direction as indicated by arrow in the following figure, and then rotate the blade twice.

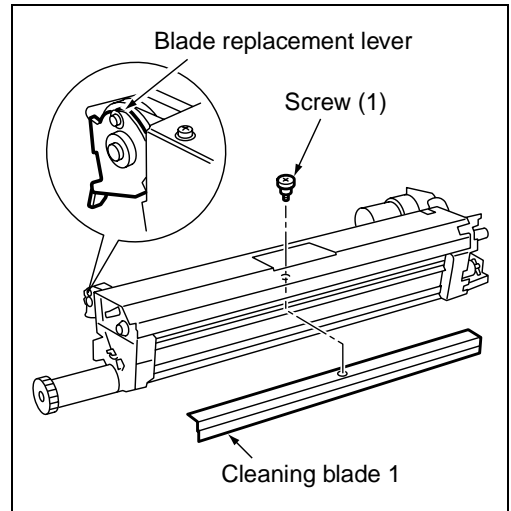
Caution: Do not release the blade release arm. Must keep pulling it.



- (7) Pull down the blade release arm.

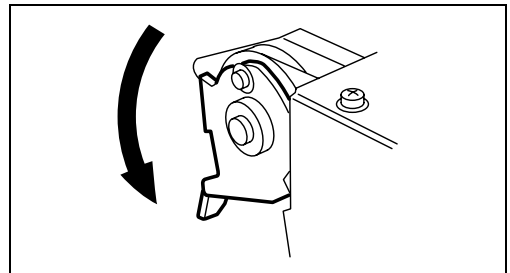
Caution: Must keep the blade replacement lever being rotated in the arrow direction by hand.

- (8) Release the blade replacement lever.
- (9) Remove one screw to detach cleaning blade 1.



- (10) Clean the inside of the cleaning unit with a cleaning pad and blower brush.
- (11) Install new cleaning blade 1.
- (12) Reinstall other parts following the removal steps in reverse.

Caution1: After replacing cleaning blades 1 and 2, make sure that the blade replacement lever has been pulled to stretch the wire.



Caution2: After replacing cleaning blades, make sure to perform Blade Setting Mode Adjustment in the 36 mode to prevent the blades from peeling.

Caution3: When replacing cleaning blades, be sure to enter the 25 mode and select "Copy Count by Parts to be Replaced" to reset cleaning blade.

[4] Removing and Reinstalling the Toner Guide Brush and Plunger Prevention Felt

Caution1: Be sure to replace the following parts at the same time:

- Toner cleaning blades 1 and 2
- Toner guide brush/plunging prevention felt

Caution2: Do not touch the edges of the cleaning blade with bare hands.

Caution3: When reinstalling the cleaning blade, apply setting powder to the cleaning blade and the drum whole circumference regardless of whether the parts are new or old.

Caution4: When you have applied setting powder to the drum, carry out the following work before installing the drum unit on the main body:

- (1) To ensure accurate toner concentration, wipe scattered setting powder off the γ and Dmax sensors on the toner control sensor board with a rag moistened with alcohol.
- (2) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).

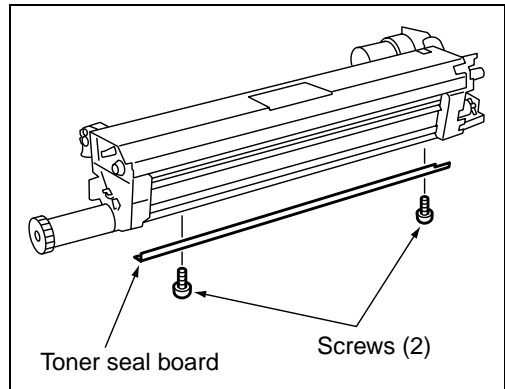
Caution5: When installing the toner guide brush, apply an even coat of setting powder to the toner guide brush with it removed from the cleaner unit.

Caution6: Do not touch the toner guide brush with bare hands. Do not allow the brush to come into direct contact with other objects.

a. Procedure

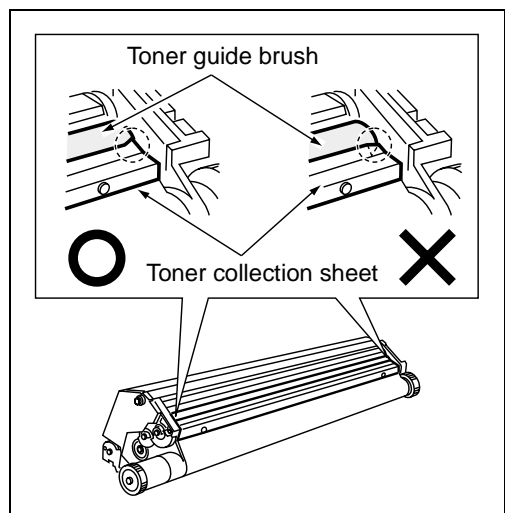
- (1) Remove the cleaning unit.
- (2) Remove the two screws to detach the toner seal plate.

Caution: When installing the toner seal plate, must start securing the front screw first.

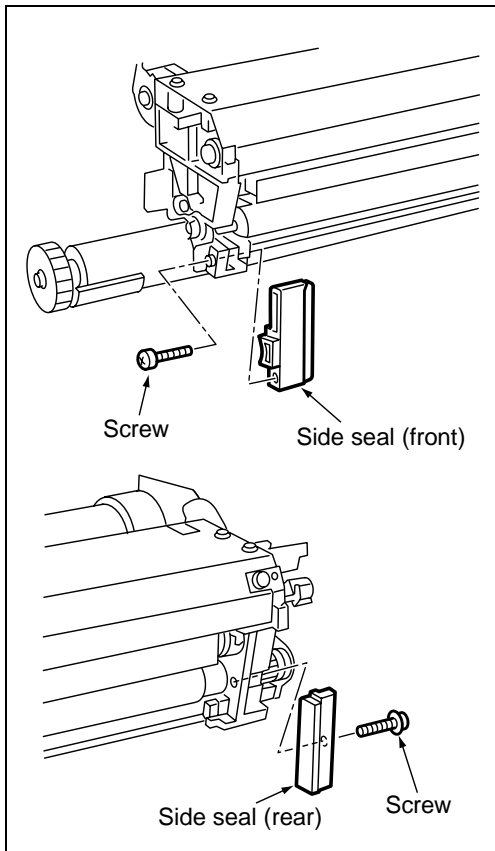


Caution: If the toner collection sheet on both ends of cleaner unit are bent over to the toner guide brush side, toner may be spilled from the toner collection unit. If this happens, correct bent sheet as follows.

- Correct bent toner collection sheet as it is in parallel with the toner guide brush or is slightly bent toward the front (less than 1 mm).

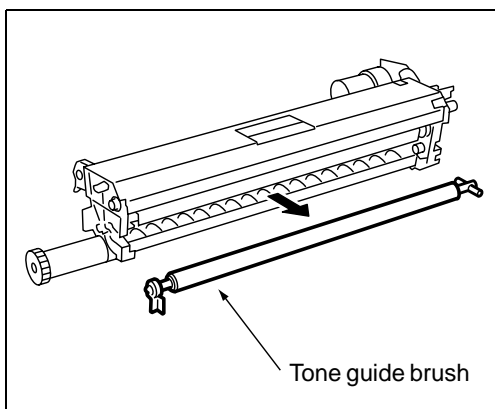


- (3) Remove the two screws to detach the two side seals (front/rear).

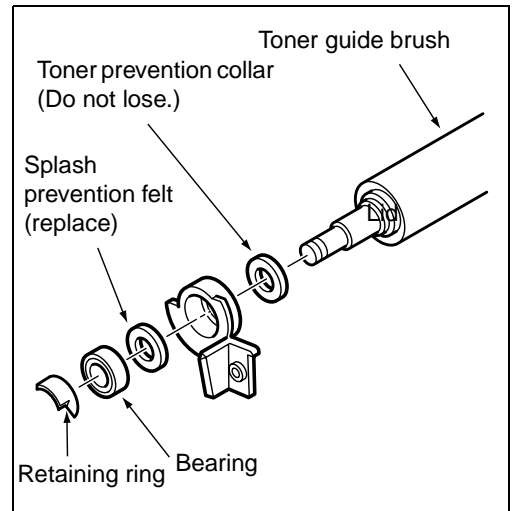


- (4) Remove one retaining ring to detach the toner guide brush.

Caution: Pull the toner guide brush leftward, then remove it forward with the gap between the brush and the bearing aligned with the side plate.



- (5) Remove one retaining ring and one bearing, then the plunging prevention felt from the toner guide brush shaft.



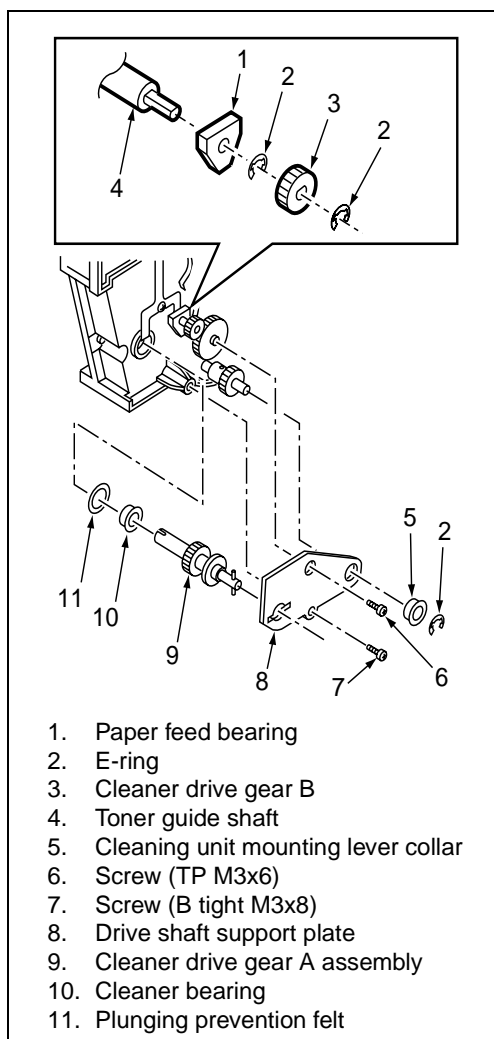
- (6) Reinstall the above parts following the removal steps in reverse.

[5] Replacing Guide Plate Assembly**a. Procedure**

- (1) Remove the toner guide brush.
- (2) Remove one E-ring, and one cleaning unit mounting lever collar.
- (3) Remove two screws to detach the drive shafts support plate.
- (4) Remove the cleaner drive gear A assembly.
- (5) Remove the cleaner drive bearing and the plunging prevention felt.

Caution: Once the plunging prevention felt is removed, replace it.

- (6) Remove one E-ring from the toner guide shaft, then the cleaner drive gear B.
- (7) Remove one E-ring from the toner guide shaft, then the paper feed bearing.

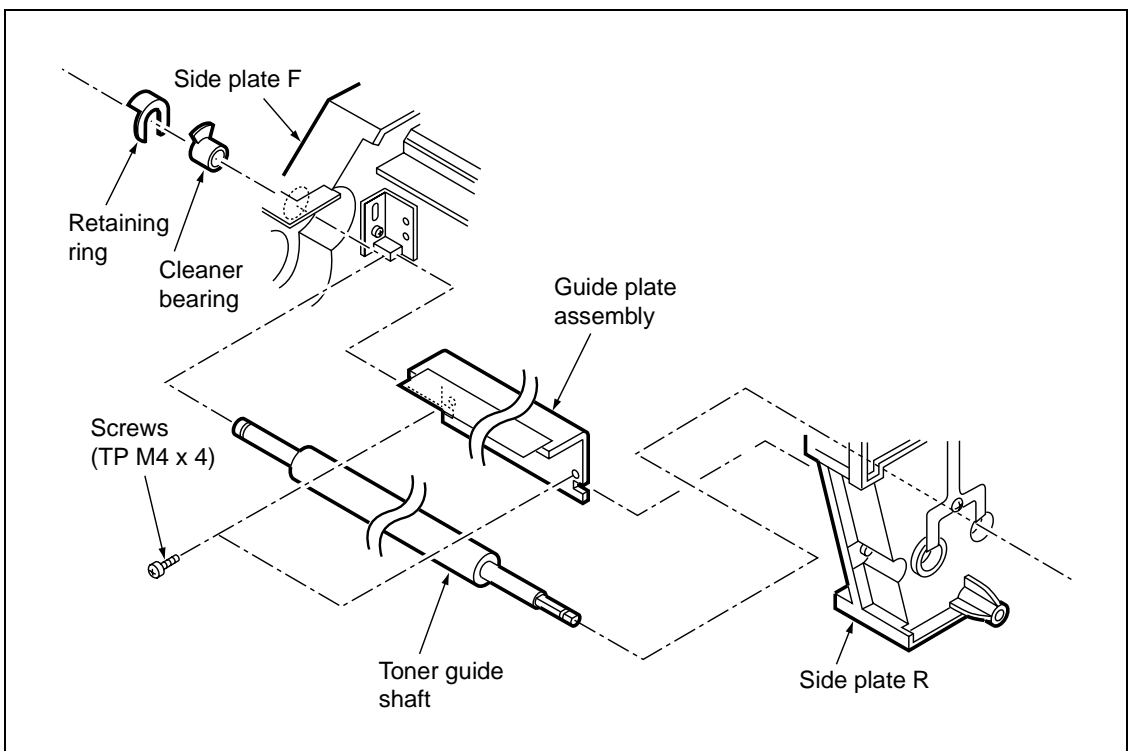


- (8) Remove one retaining ring from the toner guide shaft, then the cleaner bearing.
- (9) Remove the toner guide shaft.

Caution: When removing the toner guide shaft, remove it from the side plate R first, then from the side plate F.

- (10) Remove two screws to detach the guide plate assembly.

Caution: When installing the guide plate assembly, secure it as it touches the bottom.



- (11) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the drive reinforcing plate, do not confuse the B tight screw with the TP screw. After securing the cleaning lever collar with the E-ring, secure the drive reinforcing plate by tightening the B tight screw first and the TP screw next.

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PAPER FEED UNITS OF TRAYS 1 AND 2

⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

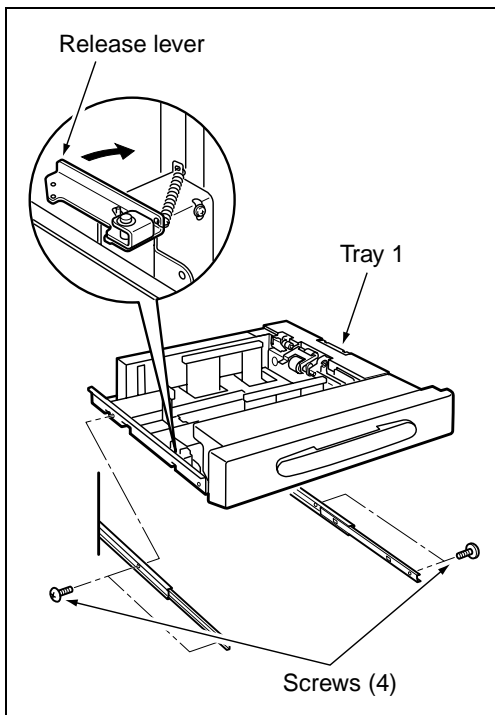
Caution: The shape and mechanism of tray 1 is the same as those of tray 2. The procedure for removing and reinstalling tray 1 is explained below.

[1] Removing and Reinstalling Paper Feed Trays 1 and 2

⚠ **Warning:** When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

a. Procedure

- (1) Open the front left and right doors.
- (2) While pressing the tray release lever (at the left) inward, draw out the tray.
- (3) Remove the four screws and remove tray 1 with it lifted.



- (4) Reinstall the above parts following the removal steps in reverse.

[2] Removing and Reinstalling the Front Covers of Trays 1 and 2

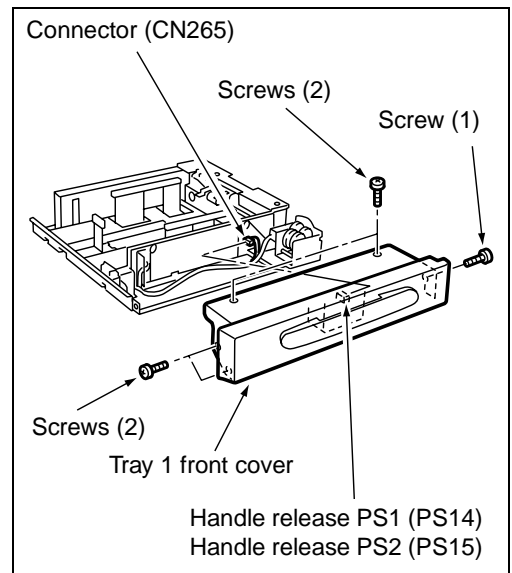
a. Procedure

- (1) Draw out paper feed tray 1.
- (2) Remove the five screws to remove the front cover of tray.

Caution: The front cover and main body of the tray are connected with a wiring harness of the handle release PS1 (PS14), handle release PS2 (PS15). Remove the front cover from the main body carefully so as not to break the wiring harness.

- (3) Disconnect the handle detection PS connector (CN265).

Caution: When reinstall the front cover, connect the handle detection PS connector without fail. If you forget to connect it, you cannot draw out any tray.

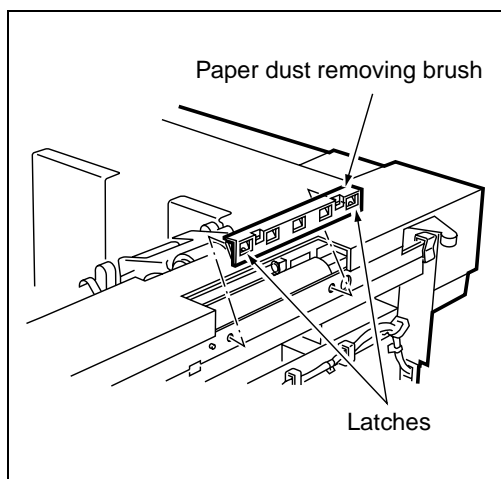


- (4) Reinstall the above parts following the removal steps in reverse.

[3] Cleaning the Paper Dust Removing Brush

a. Procedure

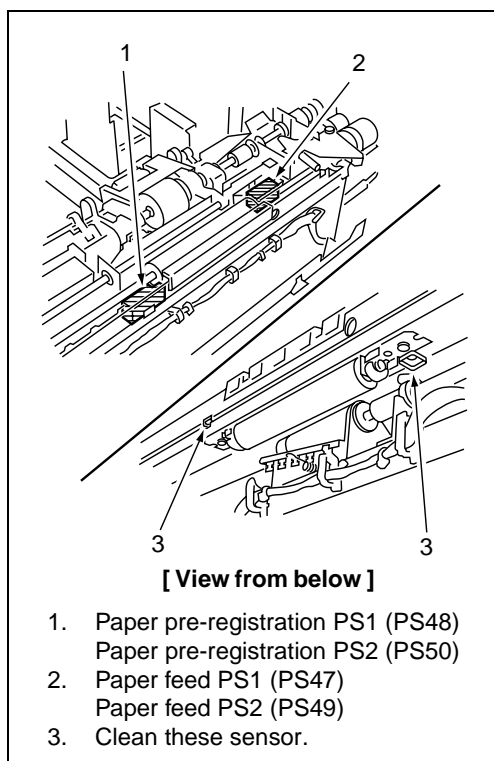
- (1) Draw out paper feed tray 1.
- (2) Release the two latches to detach the paper dust removing brush.
- (3) Clean the paper dust removing brush with a cleaning pad and blower brush.



[4] Cleaning the Paper Pre-registration PS/Paper Feed PS

a. Procedure

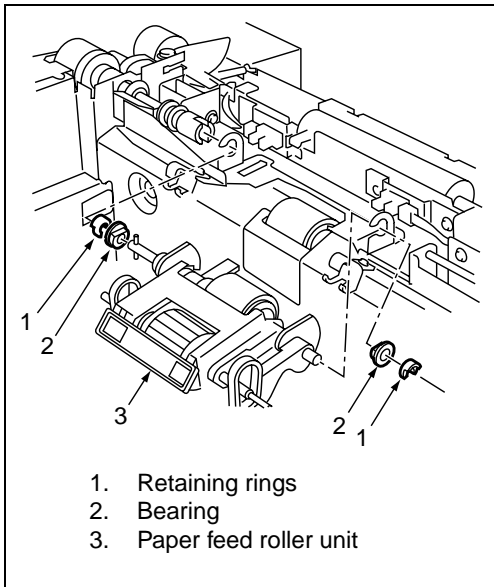
- (1) Draw out paper feed tray 1.
- (2) Clean the paper pre-registration PS1 (PS48) / the paper pre-registration PS2 (PS50) and the paper feed PS1 (PS47) / the paper feed PS2 (PS49) with a blower brush.



[5] Removing and Reinstalling the Paper Feed Roller and the Feed Roller

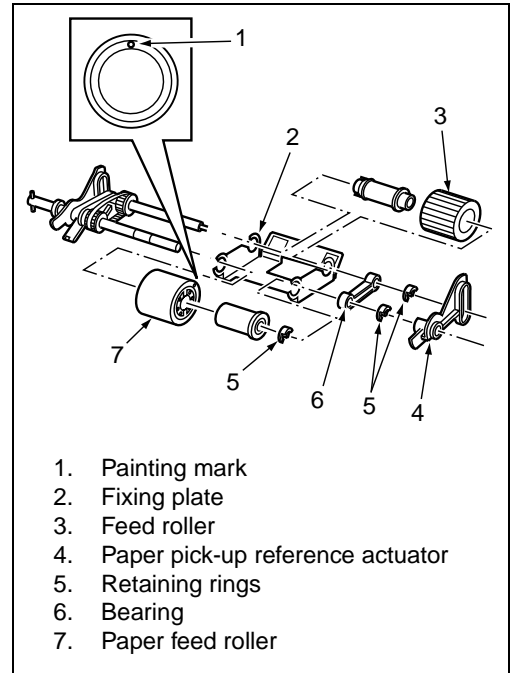
a. Procedure

- (1) Draw out paper feed tray 1.
- (2) Remove the two retaining rings and slide the two bearings outward to detach the paper feed roller unit.



- (3) Remove the following parts from the paper pick-up roller unit to remove individual rollers:

- Retaining rings (three)
- Bearing (one)
- Paper feed reference actuator
- Shafts (two)
- Fixing plate



- (4) Reinstall the above parts following the removal steps in reverse.

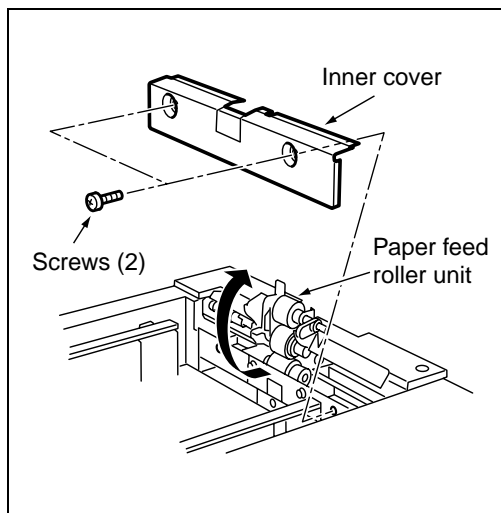
Caution1: When reinstalling rollers, pay attention to their orientation.

Caution2: Check whether grease or the like remains on each roller. If it does, wipe it.

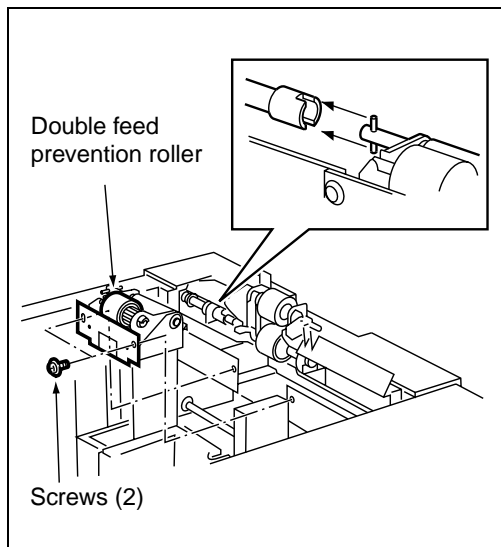
[6] Removing and Reinstalling the Double Feed Prevention Roller

a. Procedure

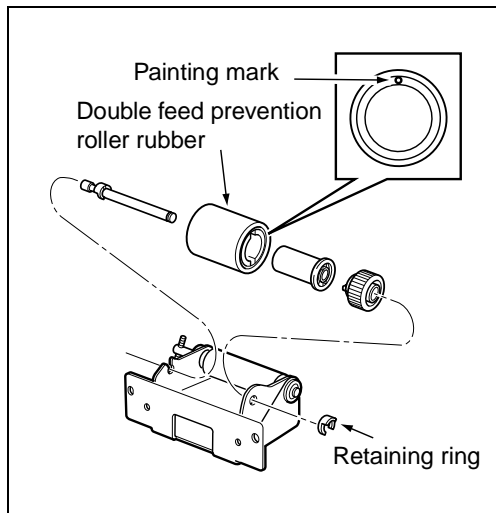
- (1) Draw out paper feed tray 1.
- (2) Raise the paper feed roller unit straight up.
- (3) Remove the two screws to detach the inner cover.



- (4) Remove the two screws to detach the double feed prevention roller.



- (5) Remove the retaining ring to detach the double feed prevention shaft with roller.
- (6) Slide the double feed prevention roller out of the shaft.



- (7) Reinstall the above parts following the removal steps in reverse.

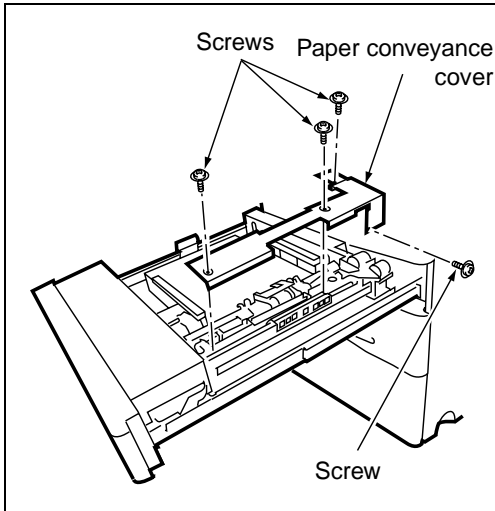
Caution1: When reinstalling the double feed prevention roller, pay attention to their orientation.

Caution2: Check whether grease or like remains on the double feed prevention roller. If it does, wipe it.

[7] Replacing the Pre-registration and the Feed Clutches (MCs)

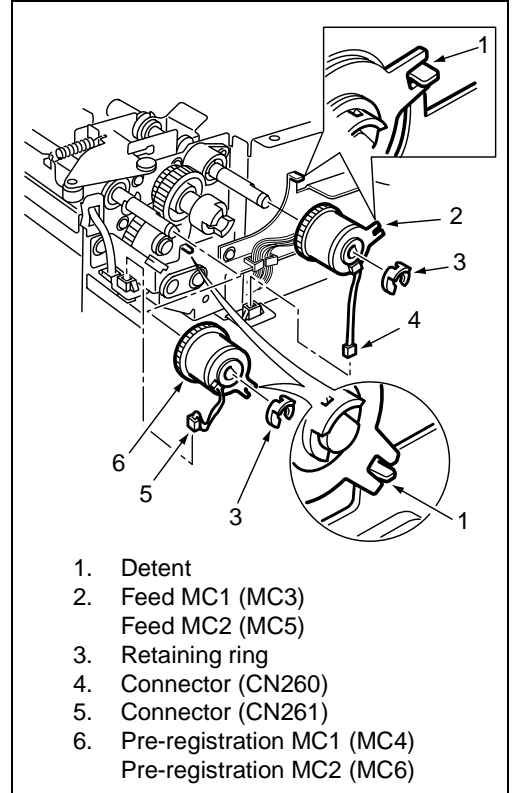
a. Procedure

- (1) Draw out paper tray 1.
- (2) Remove four screws to detach the paper conveyance cover.



- (3) Disconnect the two connectors (CN261, CN260).

- (4) Remove the retaining ring to detach the pre-registration MC1 (MC4) / the pre-registration MC2 (MC6) and the feed MC1 (MC3) / the feed MC2 (MC5).



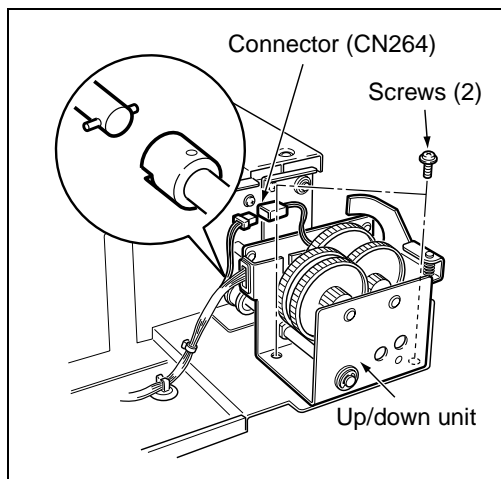
- (5) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling each MC, fit the detent in the slit in the MC.

[8] Removing and Reinstalling the Up/Down Unit

a. Procedure

- (1) Draw out paper feed tray 1.
- (2) Remove the front cover of the tray.
- (3) Disconnect the connector (CN264).
- (4) Remove the two screws to detach the up/down unit.



- (5) Reinstall the above parts following the removal steps in reverse.

[9] Replacing the Up/Down Plate Wires

Caution1: This section explains how to replace the rear wires. To replace the front wires, remove the front cover of tray and paper up/down unit. The replacement procedure is the same as that for the rear wires.

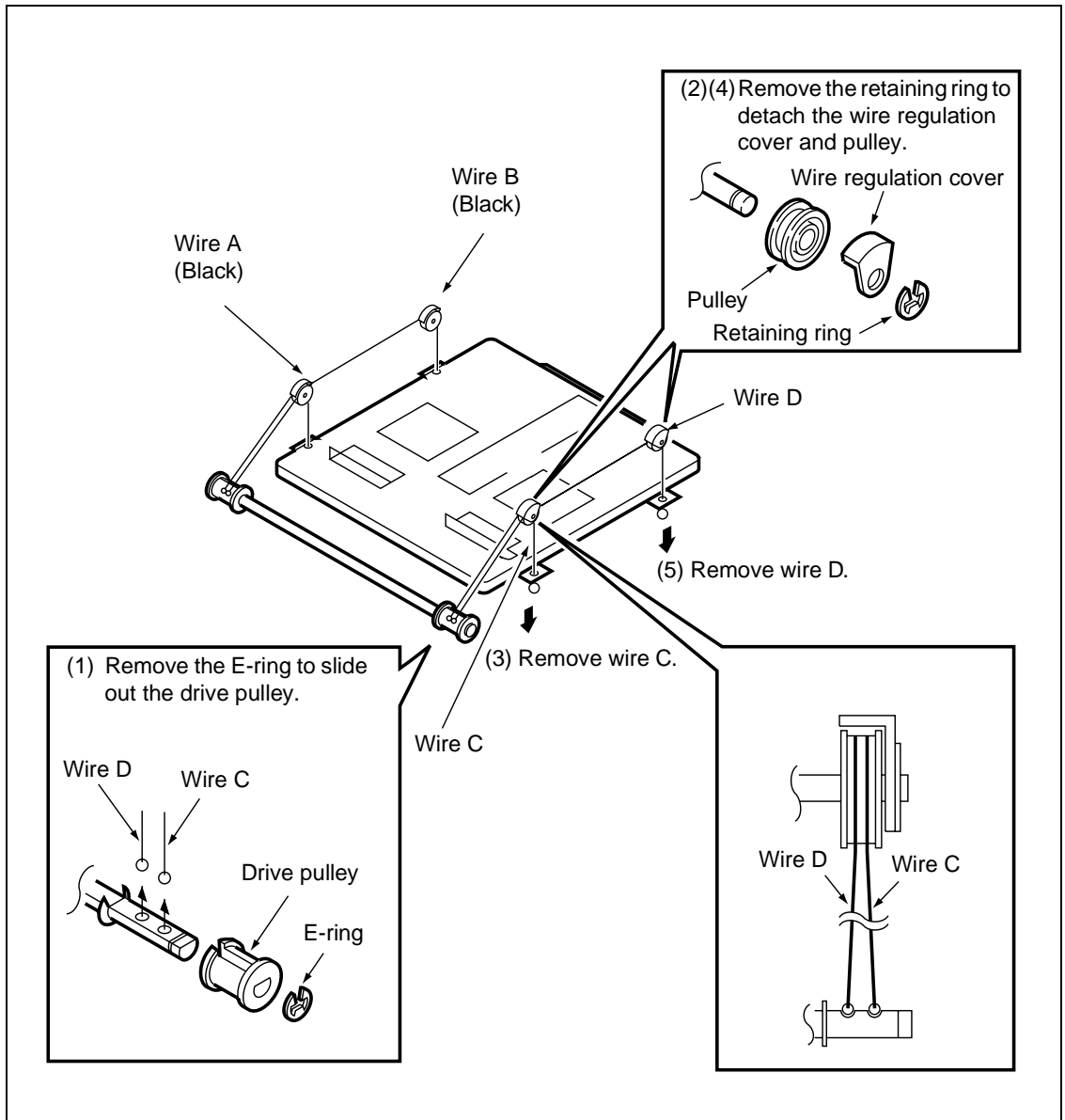
Caution2: When replacement or reinstallation of the wires is complete, check whether the up/down plate moves up and down smoothly by rotating the up/down plate drive pulley by hand.

Caution3: Be sure to install wires so that they do not cross nor ride over each other.

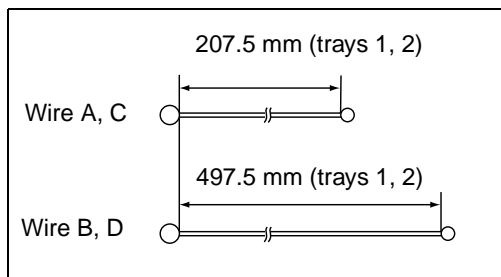
Caution4: After installing the wires, adjust inclination of the up/down plate.

<Removing Wires>

- (1) Remove the up/down unit.
- (2) Draw out paper feed tray 1/2.



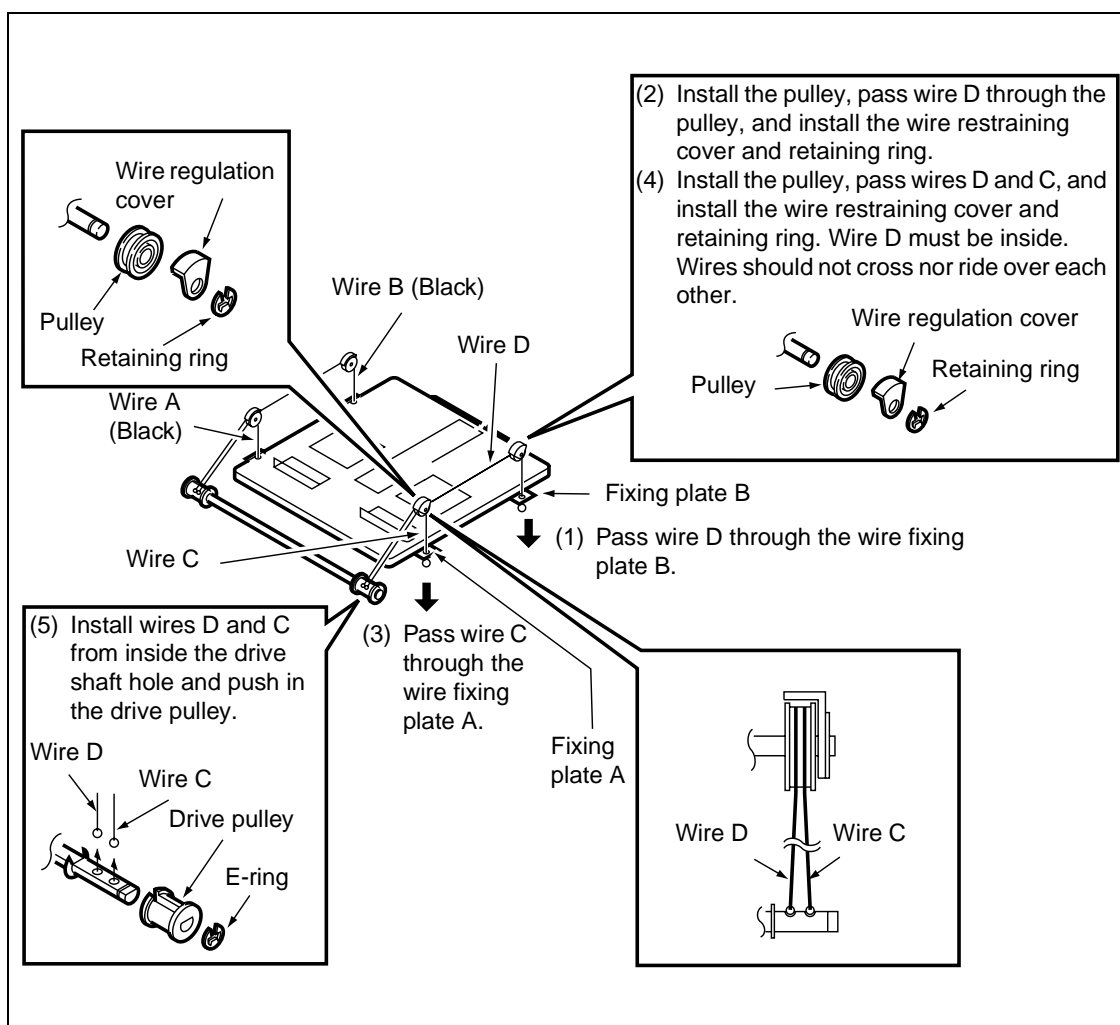
<Wire Lengths>



Wire A, C: 207.5±1 mm

Wire B, D: 497.5±1 mm

<Installing Wires>



TRAY 3 PAPER FEED UNIT

⚠ Caution:

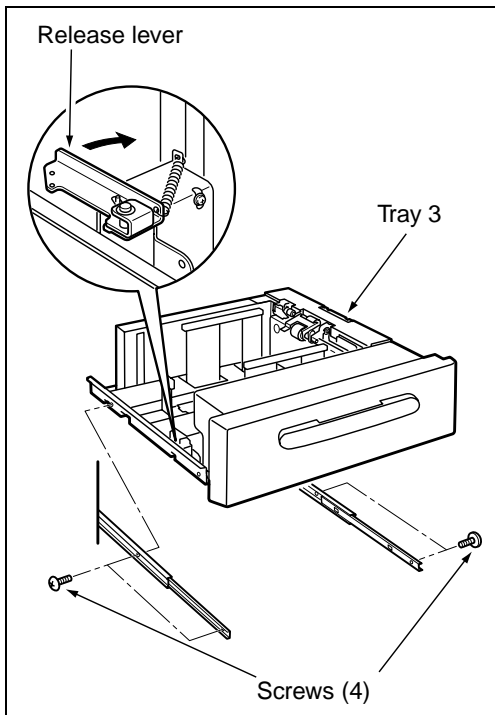
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Paper Feed Tray 3

⚠ **Warning:** When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

a. Procedure

- (1) Open the front left and right doors.
- (2) While pressing the tray release lever (at the left) inward, draw out the tray.
- (3) Remove the four screws and remove the tray with it lifted.



- (4) Reinstall the above parts following the removal steps in reverse.

[2] Removing and Reinstalling the Front Cover of Paper Tray 3

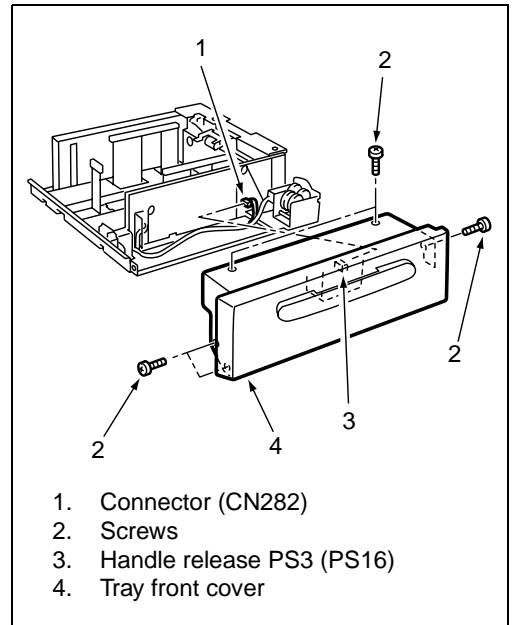
a. Procedure

- (1) Draw out paper feed tray 3.
- (2) Remove the five screws to remove the front cover of tray.

Caution: The front cover and main body of the tray are connected with a wiring harness of the handle release PS3 (PS16). Remove the tray front cover from the main body carefully so as not to break the wiring harness.

- (3) Disconnect the handle detection PS connector (CN282).

Caution: When reinstalling the front cover, connect the handle detection PS connector without fail. If you forget to connect it, you cannot draw out any tray.

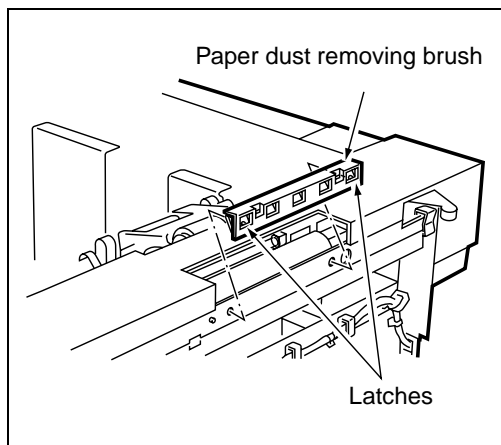


- (4) Reinstall the above parts following the removal steps in reverse.

[3] Cleaning the Paper Dust Removing Brush

a. Procedure

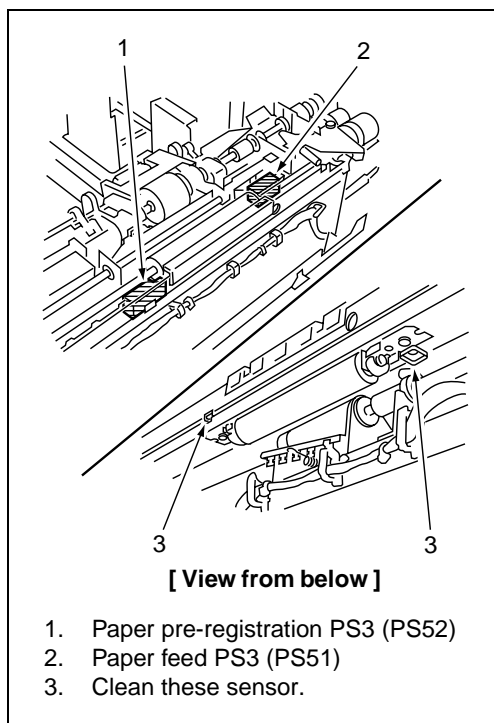
- (1) Draw out paper feed tray 3.
- (2) Release the two latches to detach the paper dust removing brush.
- (3) Clean the paper dust removing brush with the cleaning pad and blower brush.



[4] Cleaning the Paper Pre-registration PS/the Paper Feed PS

a. Procedure

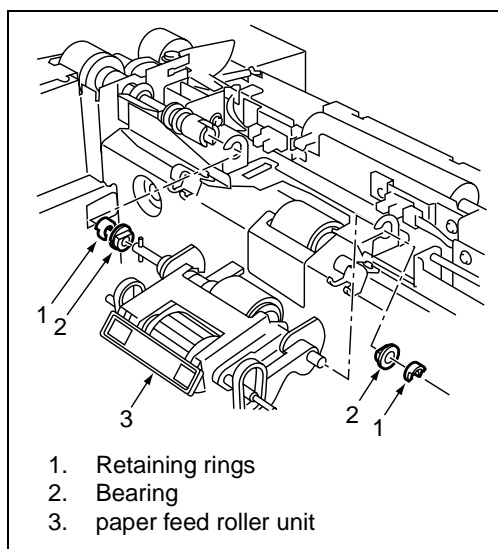
- (1) Draw out paper feed tray 3.
- (2) Clean the paper pre-registration PS3 (PS52) / the paper feed PS3 (PS51) with a blower brush.



[5] Removing and Reinstalling the Paper Feed Roller and the Feed Roller

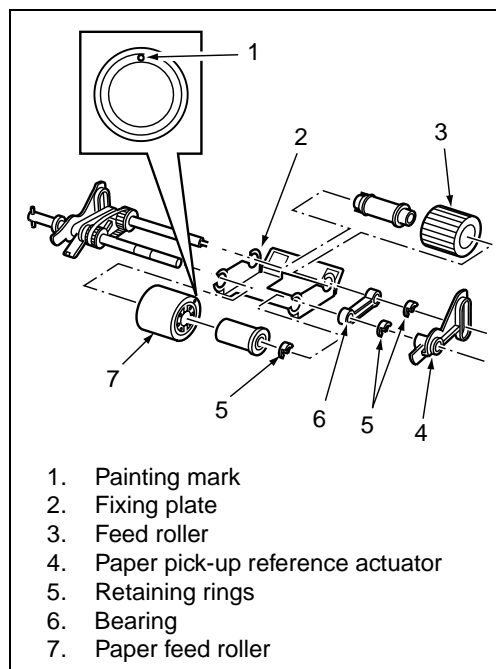
a. Procedure

- (1) Draw out tray 3.
- (2) Remove the two retaining rings and slide the two bearings outward to detach the paper feed roller unit.



- (3) Remove the following parts from the paper feed roller unit to remove individual rollers:

- Retaining rings (3)
- Bearing (1)
- Paper feed reference actuator
- Shafts (2)
- Fixing plate



- (4) Reinstall the above parts following the removal steps in reverse.

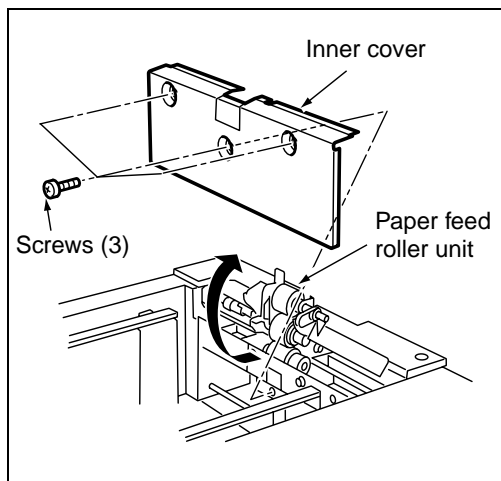
Caution1: When reinstalling rollers, pay attention to their orientation.

Caution2: Check whether grease or like remains on each roller. If it does, wipe it.

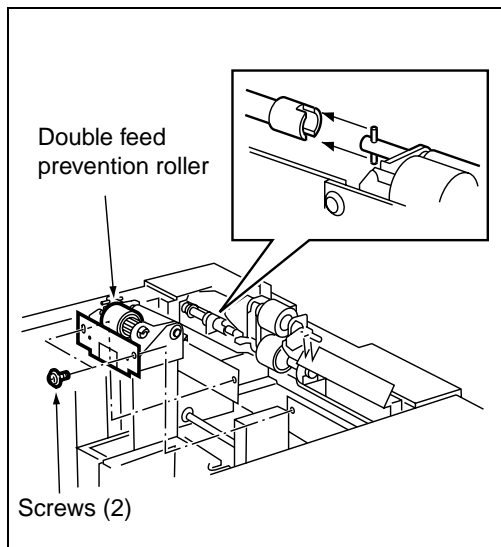
[6] Removing and Reinstalling the Double Feed Prevention Roller

a. Procedure

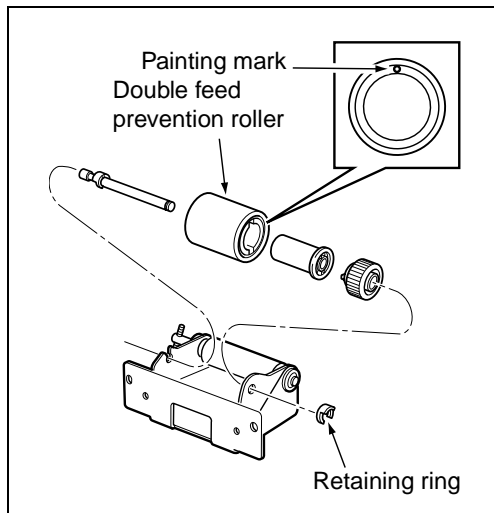
- (1) Draw out paper feed tray 3.
- (2) Raise the paper feed roller unit straight up.
- (3) Remove the three screws to detach the inner cover.



- (4) Remove the two screws to detach the double feed prevention roller unit.



- (5) Remove the retaining ring to detach the double feed prevention roller shaft with roller.
- (6) Slide the double feed prevention roller out of the shaft.



- (7) Reinstall the above parts following the removal steps in reverse.

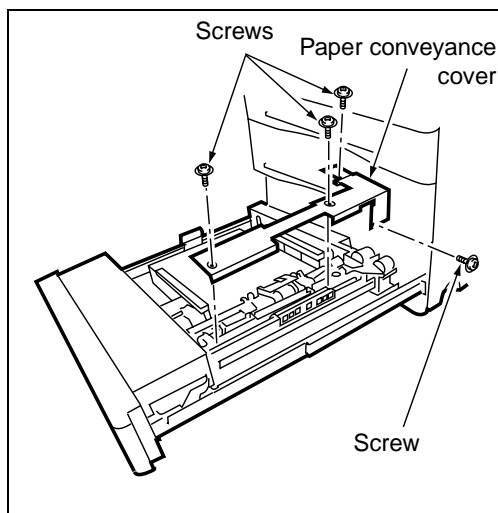
Caution1: When reinstalling the roller, pay attention to its orientation.

Caution2: Check whether grease or the like remains on double feed prevention roller. If it does wipe it.

[7] Replacing the Pre-registration MC3 (MC8) and the Feed MC3 (MC7)

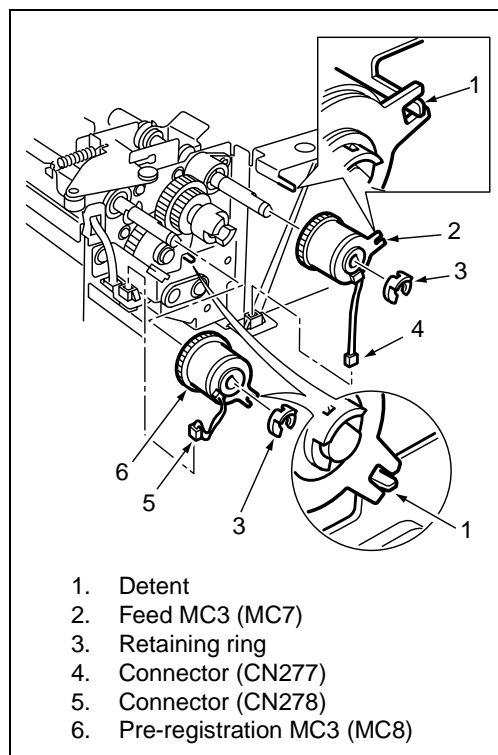
a. Procedure

- (1) Draw out paper tray 3.
- (2) Remove the four screws to detach the paper conveyance cover.



- (3) Disconnect the two connectors (CN278, CN277).

- (4) Remove the retaining ring to detach the pre-registration MC3 (MC8) and the feed MC3 (MC7).



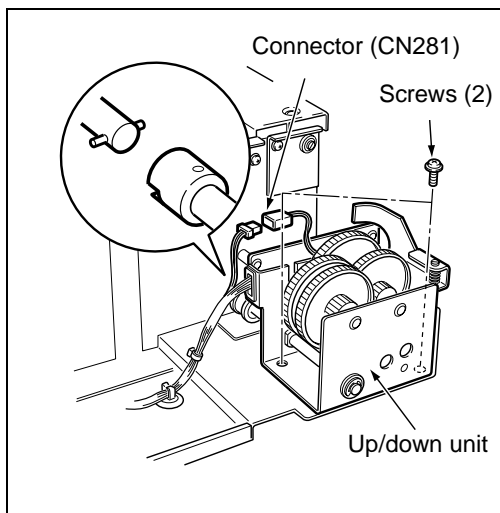
- (5) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling each MC, fit the detent in the slit in the MC.

[8] Removing and Reinstalling the Up/Down Unit

a. Procedure

- (1) Draw out paper feed tray 3.
- (2) Remove the front cover of the tray.
- (3) Disconnect the connector (CN281).
- (4) Remove the two screws to detach the up/down unit.



- (5) Reinstall the above parts following the removal steps in reverse.

[9] Replacing the Up/Down Plate Wires

Caution1: This section explains how to replace the rear wires. To replace the front wires, remove the front cover of tray and paper up/down unit. The replacement procedure is the same as that for the rear wires.

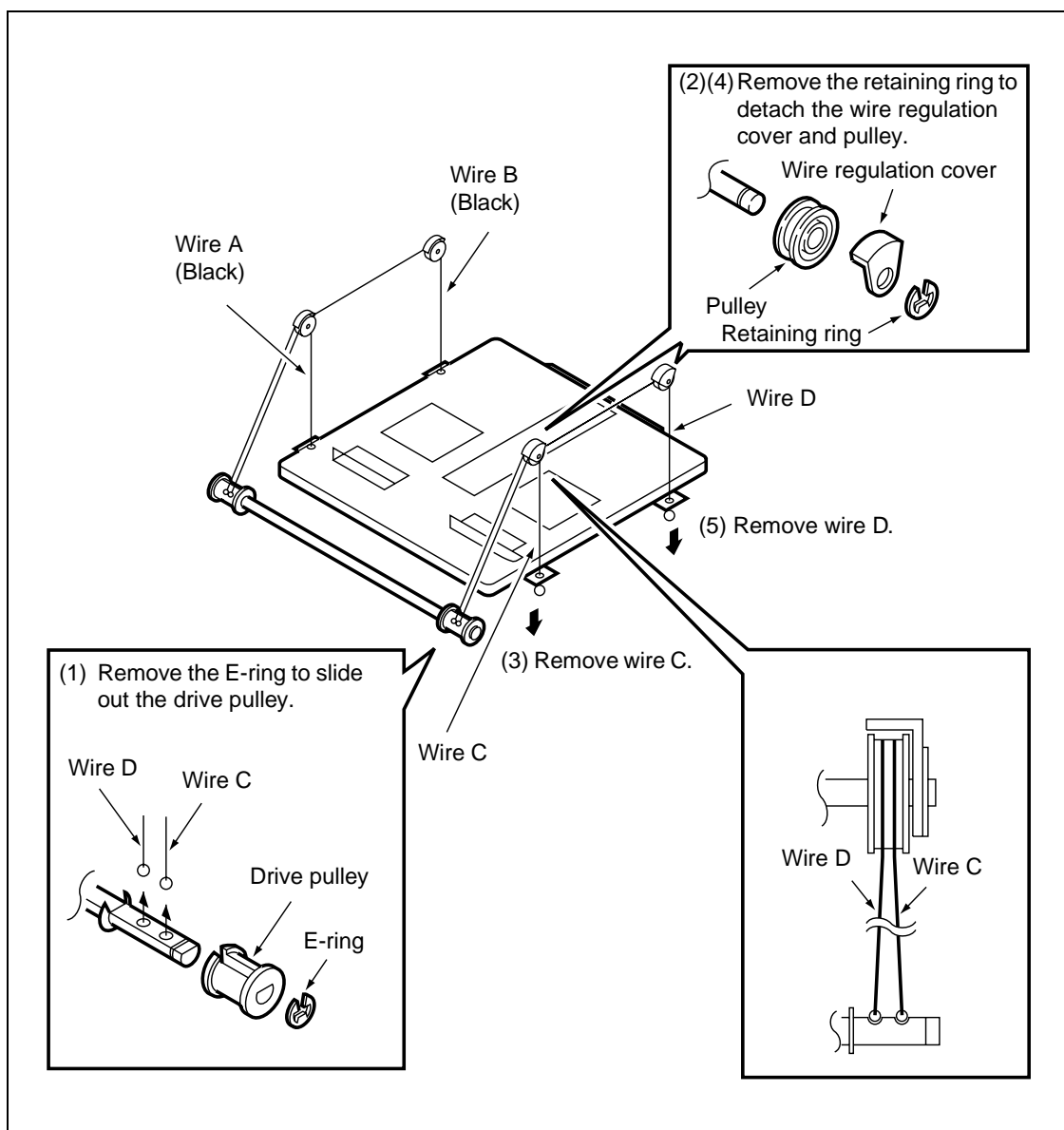
Caution2: When replacement or reinstallation of the wires is complete, check whether the up/down plate moves up and down smoothly by rotating the up/down plate drive pulley by hand.

Caution3: Be sure to install wires so that they do not cross nor ride over each other.

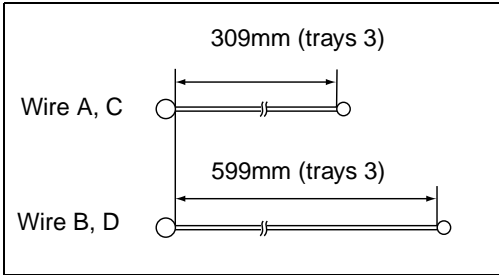
Caution4: After installing the wires, adjust inclination of the up/down plate.

<Removing Wires>

- (1) Remove the up/down unit.
- (2) Draw out paper feed tray 3.

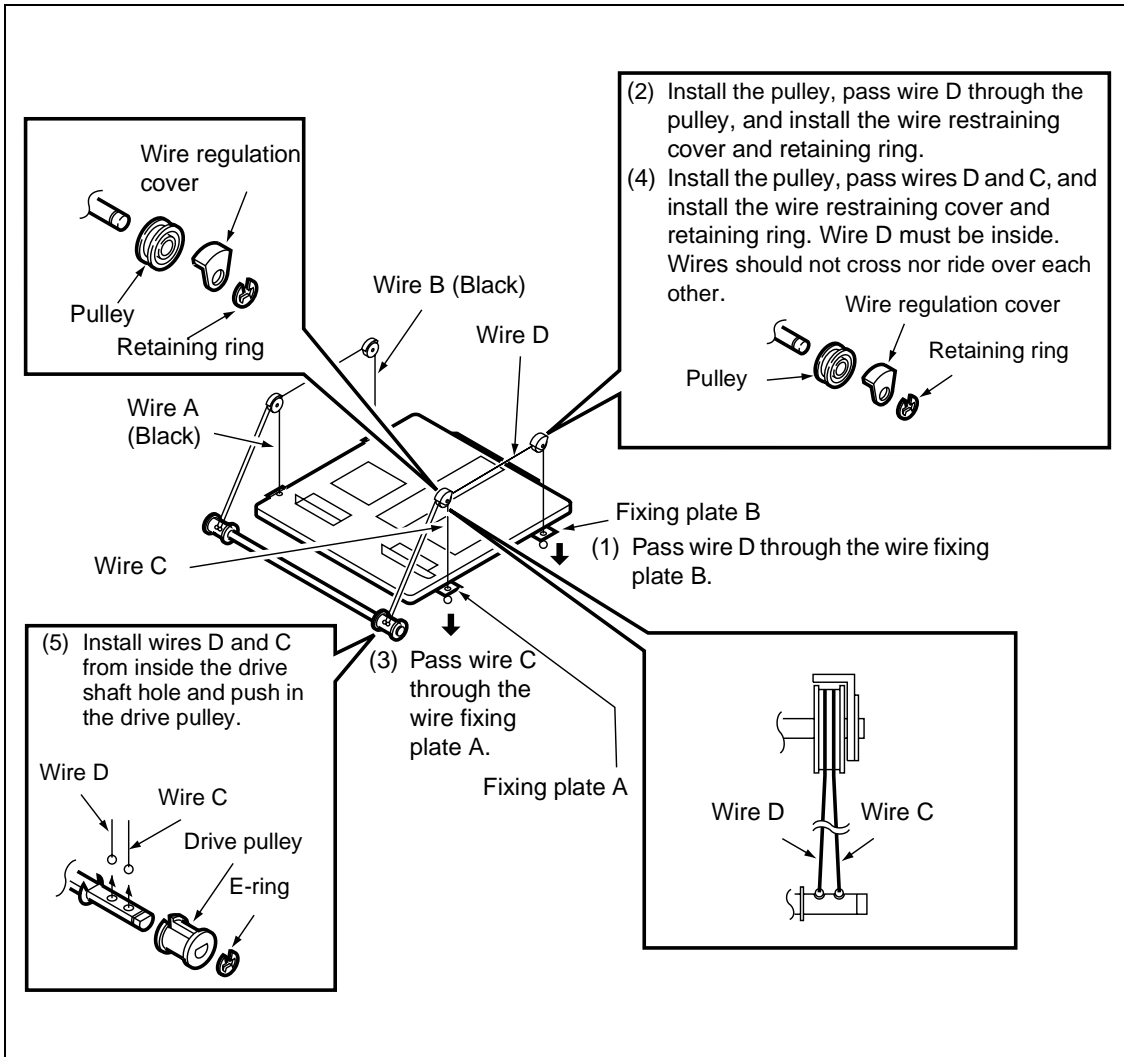


<Wire Lengths>



Wire A, C: 309±1 mm
Wire B, D: 599±1 mm

<Installing Wires>



BY-PASS TRAY

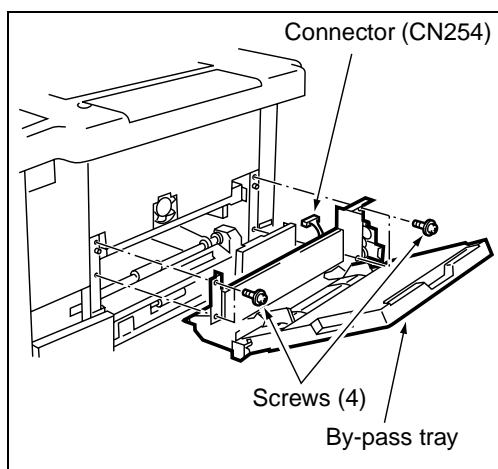
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the By-pass Tray

a. Procedure

- (1) Remove the right side cover (upper). (See "EXTERNAL SECTION.")
- (2) Detach the main body cooling fan 4 (FN12). (See "WRITE SECTION.")
- (3) Disconnect the connector (CN254).
- (4) Remove the four screws to remove the by-pass tray.

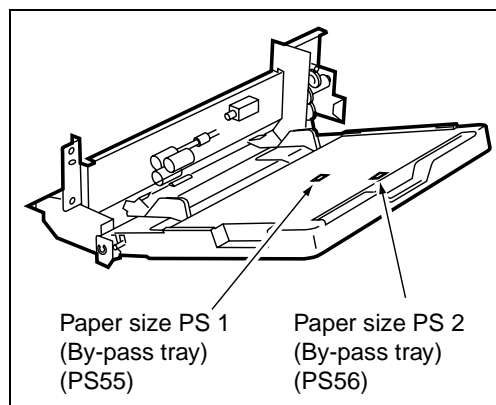


- (5) Reinstall the above parts following the removal steps in reverse.

[2] Cleaning the Paper Size Detection Sensors

a. Procedure

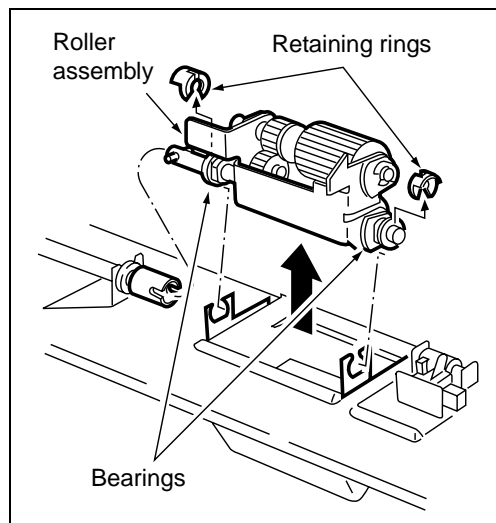
- (1) Open the by-pass tray.
- (2) Clean the two paper size sensors (PS55, PS56) with a blower brush.



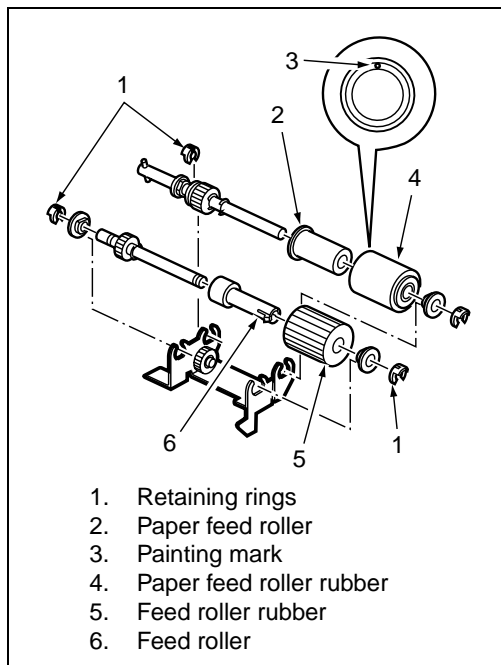
[3] Replacing the Paper Feed Roller/the Feed Roller Rubbers

a. Procedure

- (1) Remove the by-pass tray.
- (2) Remove the two retaining rings and slide the two bearings outward to remove the roller assembly.



- (3) Remove the three retaining rings from the roller subassembly to remove rollers.



- (4) Reinstall the above parts following the removal steps in reverse.

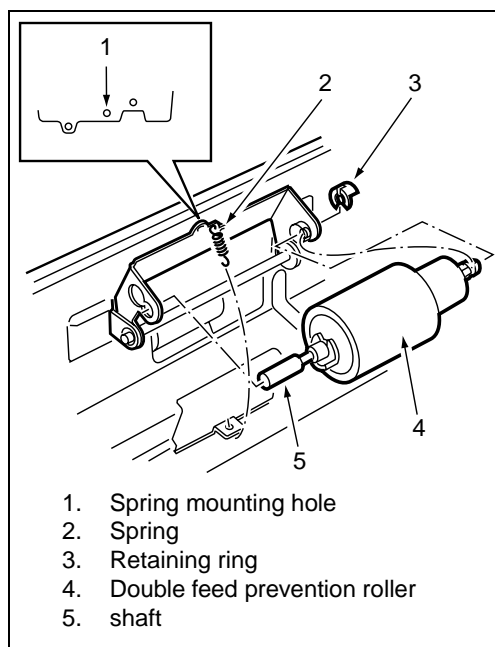
Caution: When reinstalling the rollers, pay attention to their orientation and position.

[4] Replacing the Double Feed Prevention Roller Rubber

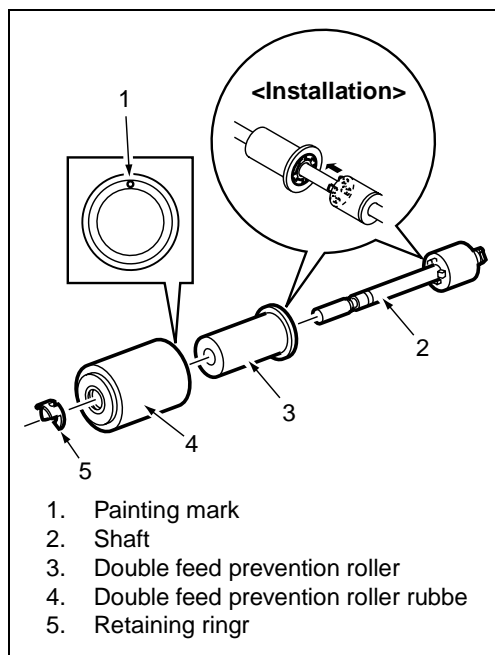
a. Procedure

- (1) Remove the by-pass tray and place the tray upside down.
- (2) Remove the spring and retaining ring to remove the double feed prevention roller together with the shaft.

Caution: There are three spring mounting holes. Engage the spring with the hole at the center.



- (3) Remove the retaining ring to pull the double feed prevention roller from the shaft.



- (4) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling the roller, pay attention to its orientation.

VERTICAL CONVEYANCE SECTION

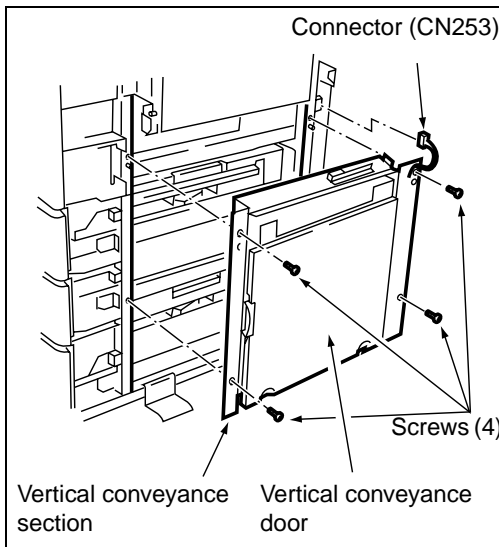
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Vertical Conveyance Section

a. Procedure

- (1) Remove the right side cover (lower). (See "EXTERNAL SECTION.")
- (2) Disconnect the connector (CN253).
- (3) Remove the four screws to remove the vertical conveyance section.



- (4) Reinstall the above parts following the removal steps in reverse.

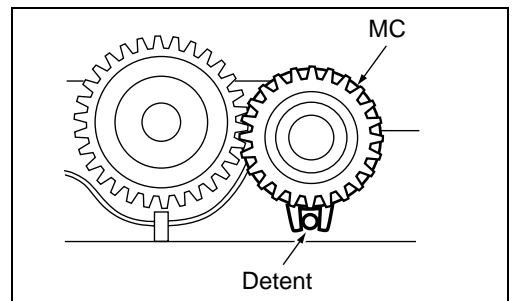
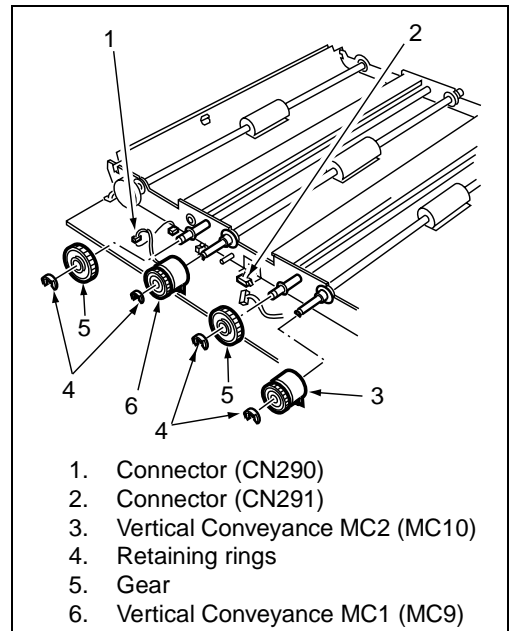
Caution: When installing the vertical conveyance section, secure the section by four screws with its door closed.

[2] Removing and Reinstalling the Vertical Conveyance MC (MC9, MC10)

a. Procedure

- (1) Remove the vertical conveyance section.
- (2) Remove two retaining rings to detach two gears.
- (3) Disconnect the two connectors (CN290, CN291) to remove the wiring harness from the wiring harness guide.
- (4) Remove the two retaining rings to detach clutches.

Caution: When reinstalling the vertical conveyance MCs clutches, be sure to fit the detent in the slit in the clutch.

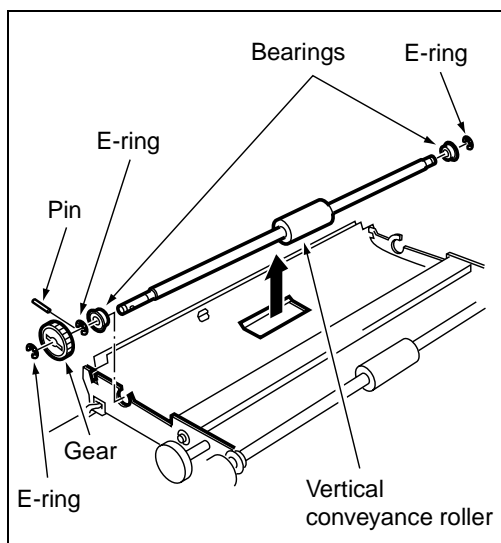


- (1) Reinstall the above parts following the removal steps in reverse.

[3] Replacing the Vertical Conveyance Roller (Upper)

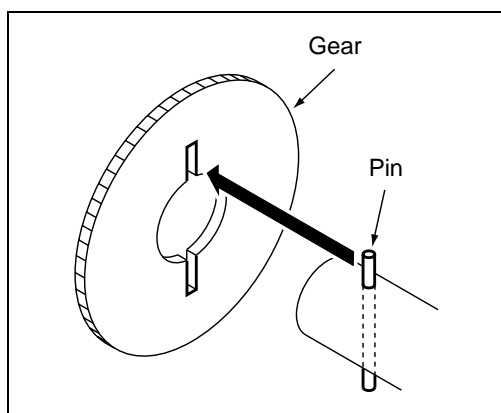
a. Procedure

- (1) Remove the vertical conveyance section.
- (2) Remove the E-ring to remove the gear and pin.
- (3) Remove the two E-rings to move the bearing outward.
- (4) Remove the vertical conveyance roller (upper).



- (5) Reinstall the above parts following the removal steps in reverse.

Caution: Install the gear with the shaft pin fit into the groove at the back of the gear.

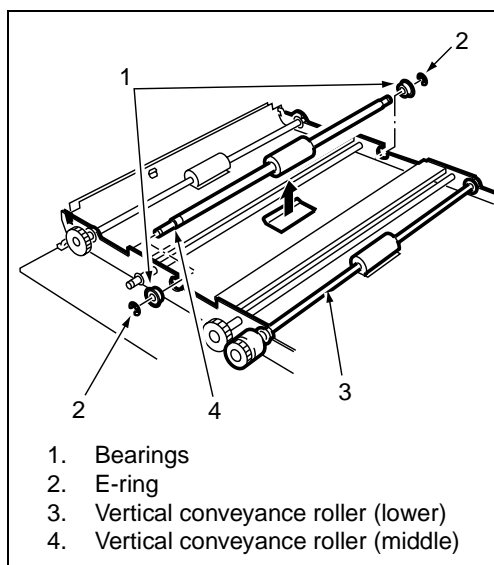


[4] Removing and Reinstalling the Vertical Conveyance Rollers (Middle/Lower)

a. Procedure

- (1) Remove the vertical conveyance section.
- (2) Remove vertical MCs 9 and 10.
- (3) Remove the two E-rings to move the bearing.
- (4) Remove the vertical conveyance rollers (middle/lower) together with the shaft.

Caution: This illustration shows how to remove the vertical conveyance roller (middle). Remove the vertical conveyance roller (lower) in the same manner.

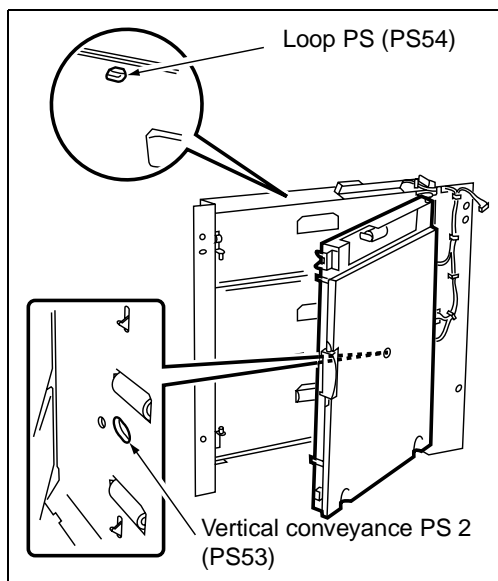


- (1) Reinstall the above parts following the removal steps in reverse.

[5] Cleaning the Vertical Conveyance PS/Loop PS

a. Procedure

- (1) Remove the vertical conveyance unit.
- (2) Clean the vertical conveyance PS (PS53) and loop PS (PS54) using a blower brush.



- (3) Reinstall the above parts following the removal steps in reverse.

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ADU UNIT

⚠ Caution:

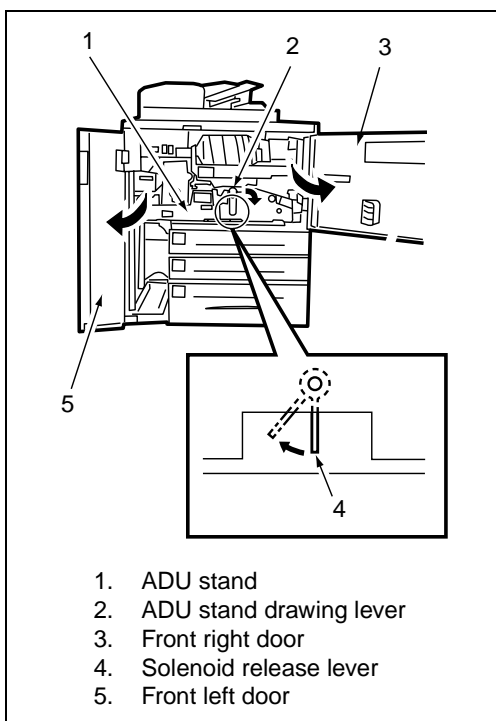
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Drawing out and Reinstalling the ADU Stand

⚠ **Warning:** The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Open the front right and left doors.
- (2) With the solenoid release lever under the ADU stand pushed to the left, turn down the ADU drawing lever to the right.
- (3) Gripping the ADU stand drawing lever, draw out the ADU stand.

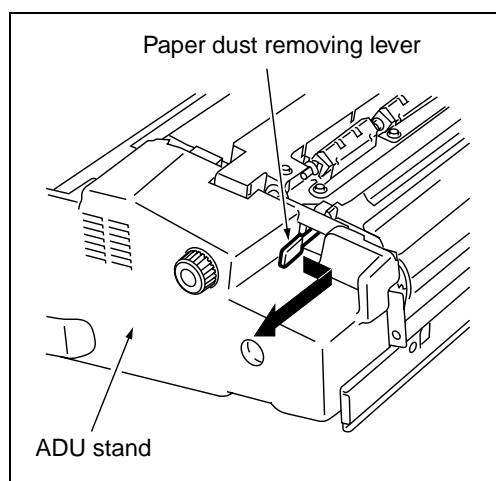


- (4) To reinstall the ADU stand, push in the ADU stand and then turn the ADU stand drawing lever upright.

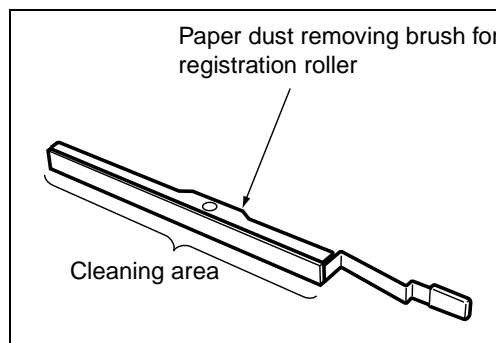
[2] Cleaning the Paper Dust Removing Brush for Registration Roller

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Slide the paper dust removing lever to the right, then pull it out to detach the paper dust removing brush.



- (3) Using a blower brush, clean the paper dust removing brush for the registration roller.



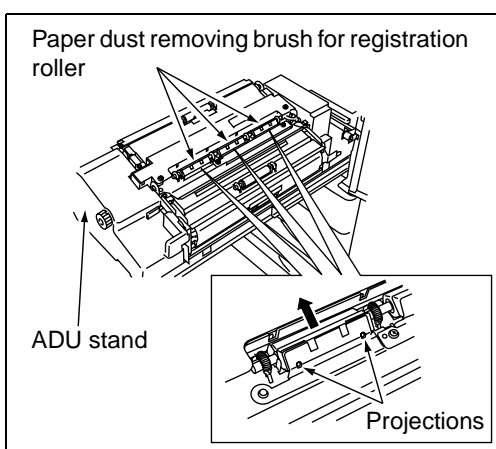
- (4) Reinstall the above parts following the removal steps in reverse.

[3] Cleaning the Paper Dust Removing Brushes for the Registration Roller

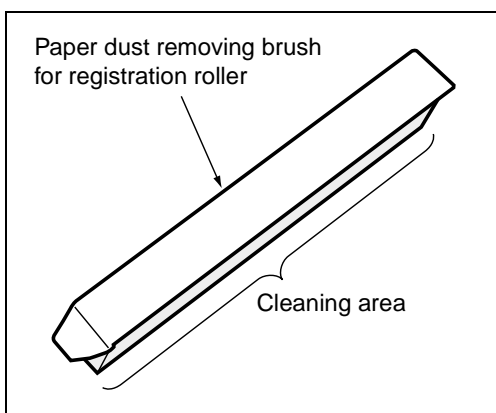
⚠ **Warning:** The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Press the projections (two for each brush) to release the paper dust removing three brushes for registration roller, then detach them.



- (3) Clean the paper dust removing brushes for registration roller using a blower brush.



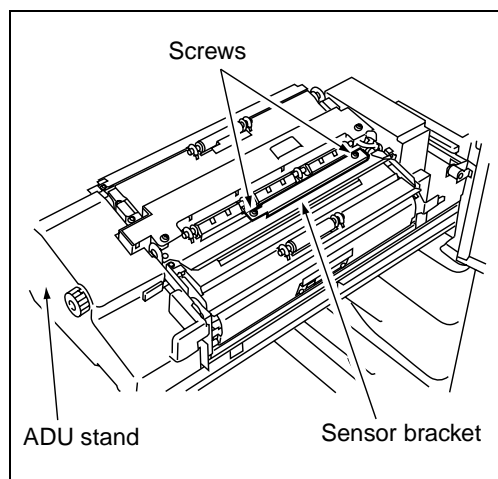
- (4) Reinstall the above parts following the removal steps in reverse.

[4] Cleaning PS44 (Registration PS)

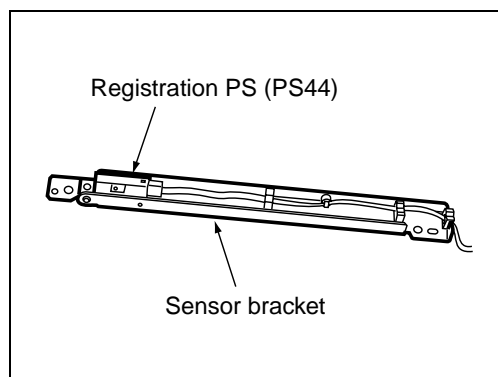
⚠ **Warning:** The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the two screws to release the sensor bracket.



- (3) Turn the sensor bracket upside down and clean registration PS (PS44) with a drum cleaner or cleaning pad.



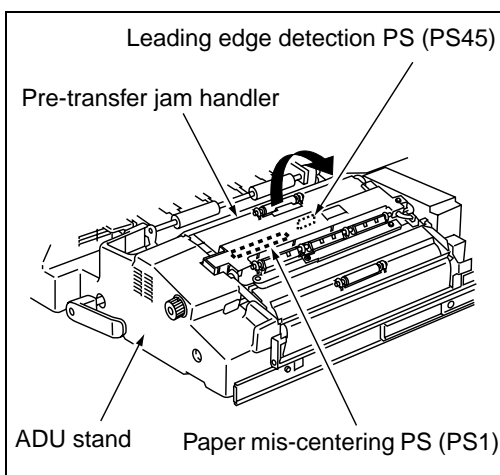
- (4) Reinstall the above parts following the removal steps in reverse.

[5] Cleaning Paper Mis-centering PS (PS1)/Leading Edge Detection PS (PS45)

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Open the pre-transfer jam handler. Clean paper mis-centering PS (PS1) and leading edge detection PS (PS45) at the rear of the pre-transfer jam handler using a drum cleaner or cleaning pad.



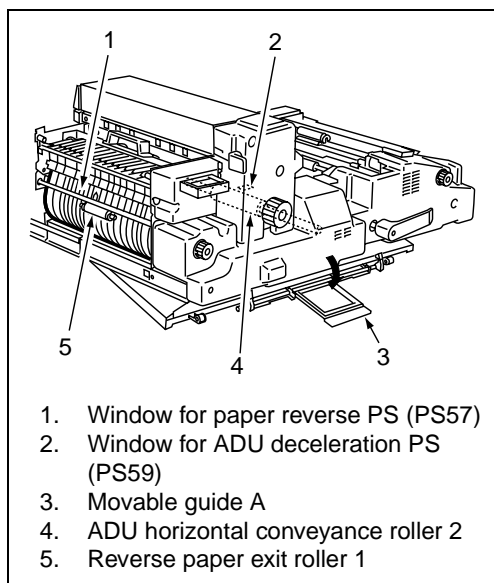
- (3) Reinstall the above parts following the removal steps in reverse.

[6] Cleaning Paper Reverse PS (PS57)/ADU Deceleration PS (PS59)

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Using a blower brush, clean the paper reverse PS (PS57) through the sensor window at the top of paper reverse paper exit roller 1.
- (3) Open the ADU conveyance unit guide A.
- (4) Using a drum cleaner or cleaning pad, clean the ADU deceleration PS (PS59) through the sensor window at the right of ADU horizontal conveyance roller 2.



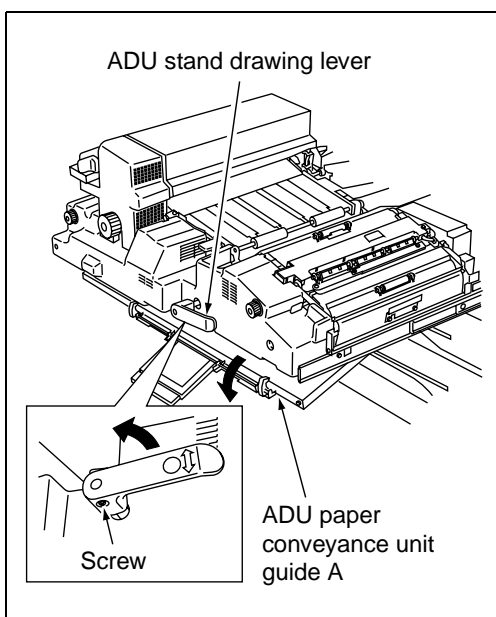
- (5) Reinstall the above parts following the removal steps in reverse.

[7] Removing and Reinstalling the ADU Cover

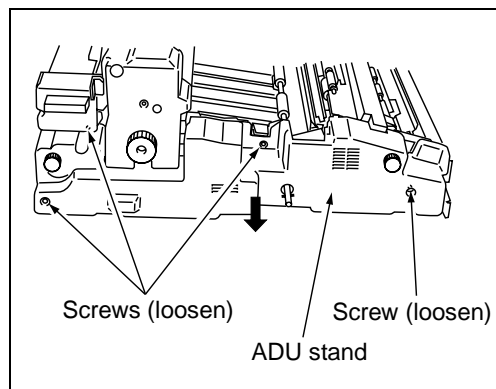
⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Open the ADU paper conveyance unit guide A.
- (3) Remove the screw to remove the ADU stand drawing lever.



- (4) Loosen the four screws to detach the ADU cover.



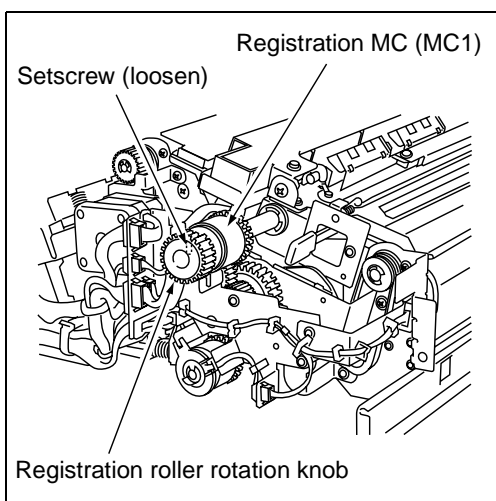
- (5) Reinstall the above parts following the removal steps in reverse.

[8] Removing and Reinstalling Registration MC (MC1)

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Detach the ADU cover.
- (3) Loosen the setscrew to remove the registration roller rotation knob.

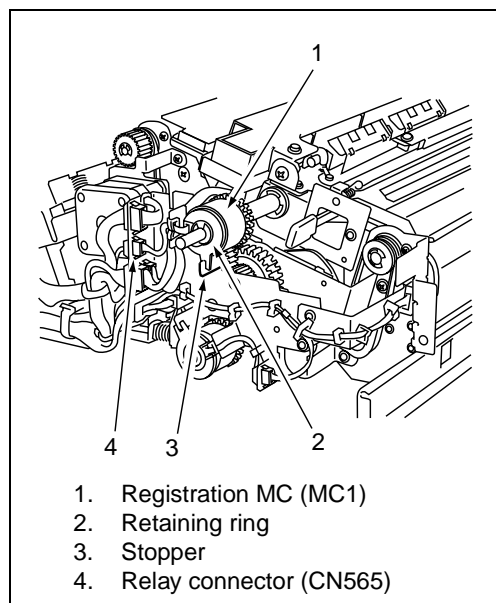


- (4) Disconnect the relay connector (CN565).

Caution: Each relay connector consists of two plugs and one socket. Be sure to remove only one plug (shown below) of the CN565 connector.

- (5) Remove the retaining ring to detach registration MC (MC1).

Caution: When reinstalling MC1, pay attention to the position of the stopper.



- (6) Reinstall the above parts following the removal steps in reverse.

[9] Removing and Reinstalling ADU Pre-registration MC (MC2)

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

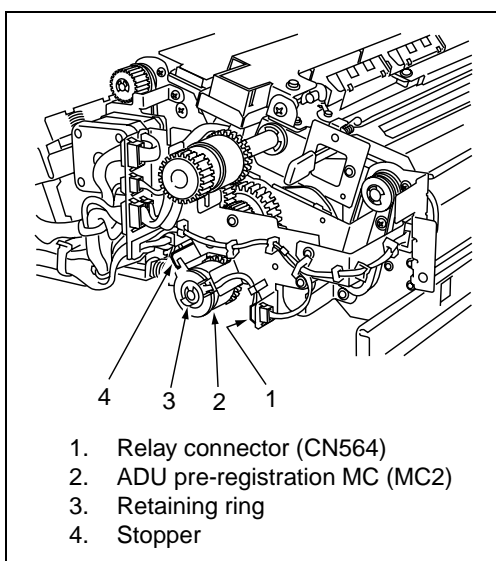
a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Detach the ADU cover.
- (3) Disconnect the relay connector (CN564).

Caution: Each relay connector consists of two plugs and one socket. Be sure to remove only one plug (shown below) of the CN564 connector.

- (4) Remove the retaining ring to detach ADU pre-registration MC (MC2).

Caution: When reinstalling MC2, pay attention to the position of the stopper.



- (5) Reinstall the above parts following the removal steps in reverse.

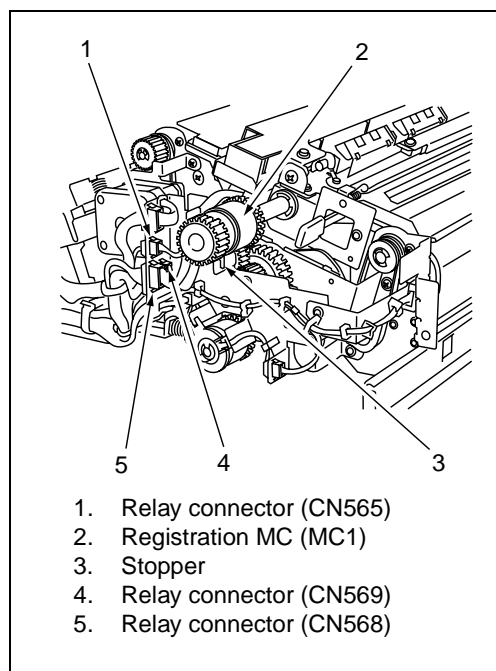
[10] Removing and Reinstalling the Second Paper Feed Unit

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

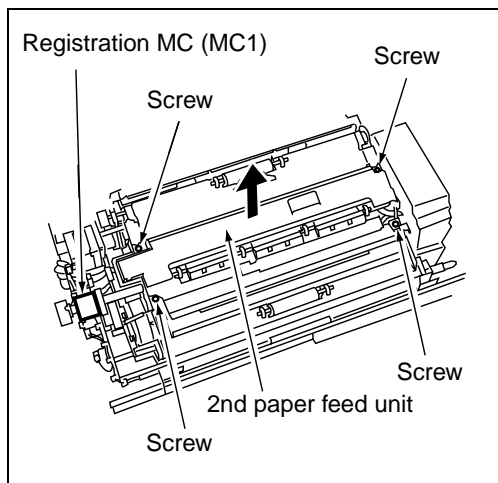
- (1) Draw out the ADU stand from the main body.
- (2) Detach the ADU cover.
- (3) Disconnect the three relay connectors (CN565, 568, 569).

Caution: Each relay connector consists of two plugs and one socket. Be sure to remove only one plug (shown below) of each connector.



- (4) Remove the four screws to remove the second paper feed unit.

Caution: When reinstalling the second paper feed unit, pay attention to the position of the stopper of second paper feed MC (MC1).



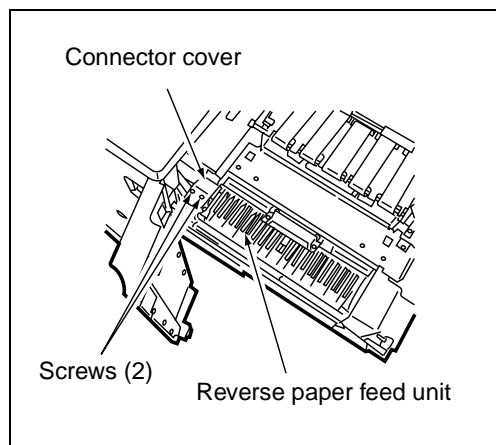
- (5) Reinstall the above parts following the removal steps in reverse.

[11] Removing and Reinstalling the ADU Stand

Warning 1: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

Warning 2: Removal and reinstallation of the ADU stand belongs to the work of carrying a heavy load, so assistance of another worker is required.

- (1) Draw out the ADU stand from the main body.
- (2) Remove the fixing unit. (See "FIXING UNIT.")
- (3) Remove the transfer/separation corona unit. (See "CORONA UNIT SECTION.")
- (4) Remove the second paper feed unit.
- (5) Remove the two screws to detach the connector cover.

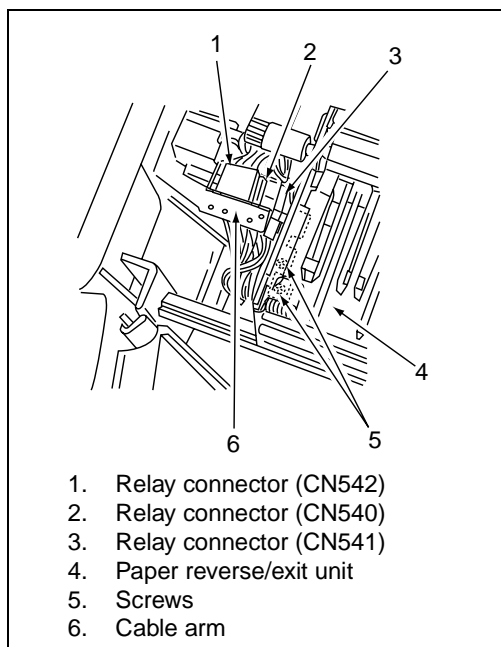


- (6) Disconnect the three relay connectors (CN540, 541, 542).

Caution: Each relay connector consists of two plugs and one socket. Be sure to remove only one plug (shown below) of each connector.

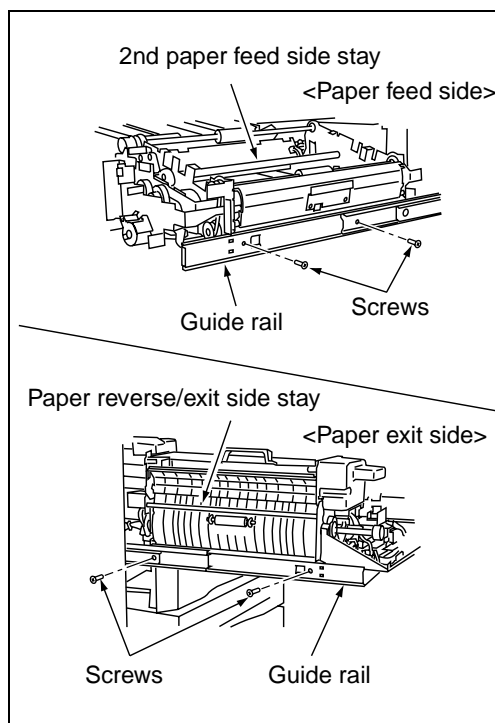
ADU UNIT

- (7) Remove the two screws to remove the cable arm from the ADU stand.



- (8) Remove the two screws securing the guide rail on the paper feed side and remove the two screws securing the guide rails on the paper exit side.
- (9) Remove the ADU stand upward with the second paper feed side stay held by one worker and the paper reverse/exit side stay held by the other worker.

⚠ Caution: Must avoid placing the ADU stand on a non flat place after the removal. If it is placed on a non flat place, its handle on the open/close guide A may be deformed.



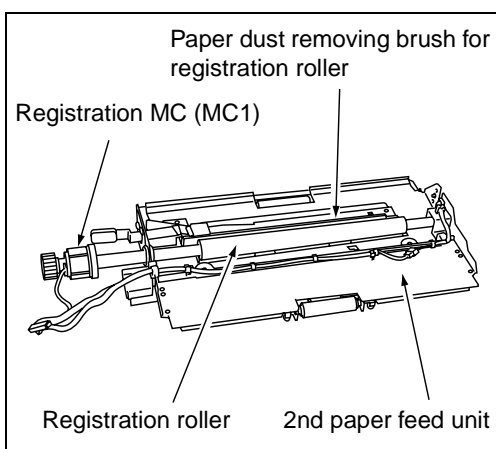
- (10) Reinstall the above parts following the removal steps in reverse.

[12] Removing and Reinstalling the Registration Roller

⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

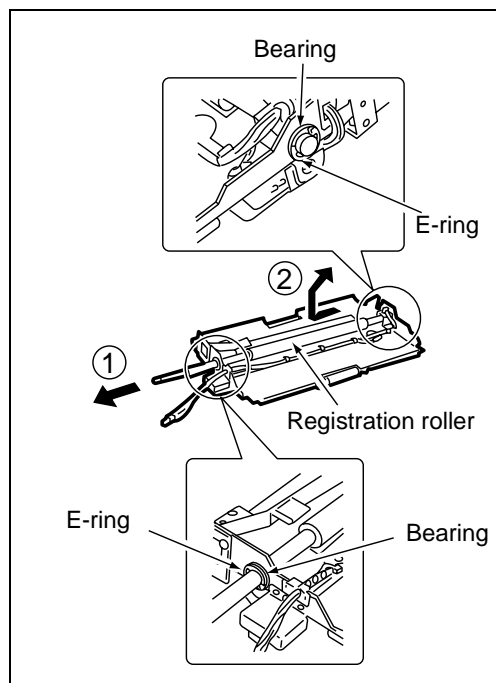
a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the second paper feed unit.
- (3) Remove the paper dust removing brush for registration roller.
- (4) Remove the registration MC (MC1).



- (5) Remove the two E-rings (one at the left and the other at the right) and one bearing from the registration roller.

- (6) Slide the registration roller to the front, then remove it by lifting its rear end.



- (7) Reinstall the above parts following the removal steps in reverse.

[13] Removing and Reinstalling the Registration Motor (M12) Assembly

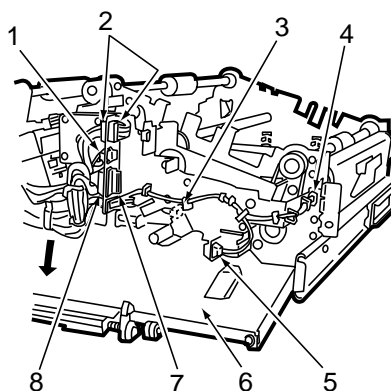
⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the second paper feed unit. See [10] Removing and Reinstalling the Second Paper Feed Unit.
- (3) Remove ADU pre-registration MC (MC2).

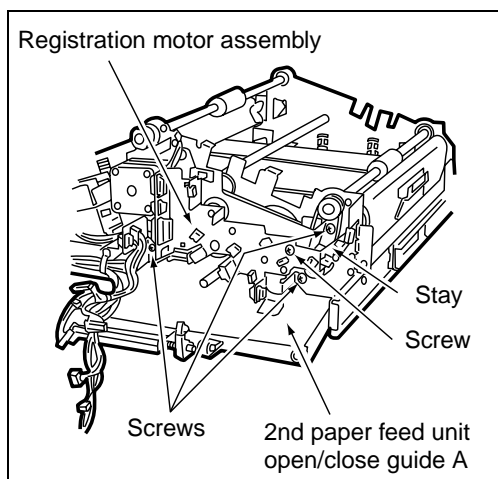
- (4) Disconnect eight relay connectors (CN557, 564, 565, 568, 569, 575, 577).

Caution: Each relay connector consists of two plugs and one socket. For CN564, 565, 568, and 569, one plug of each relay connector has already been disconnected when removed the second paper feed unit. At this point, disconnect the other plug of these connectors. For CN557, remove two plugs. For CN575 and 577, disconnect one plug shown below.



1. Relay connector (CN565)
2. Relay connector (CN557)
3. Relay connector (CN575)
4. Relay connector (CN577)
5. Relay connector (CN564)
6. Movable guide A
7. Relay connector (CN569: Opposite side)
8. Relay connector (CN568)

- (5) Release the wiring harness from the registration motor assembly and stay.
- (6) Remove one screw to detach the stay.
- (7) Remove the three screws to detach the registration motor (M12) assembly.



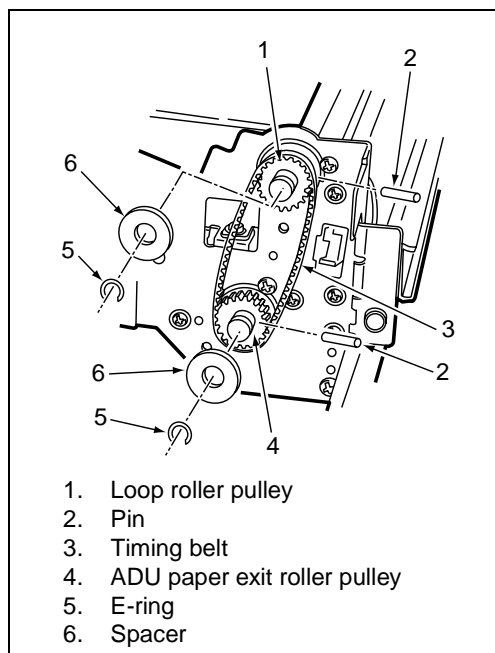
- (8) Reinstall the above parts following the removal steps in reverse.

[14] Removing and Reinstalling the Loop Roller, ADU Paper Exit Roller, and Pre-registration Roller

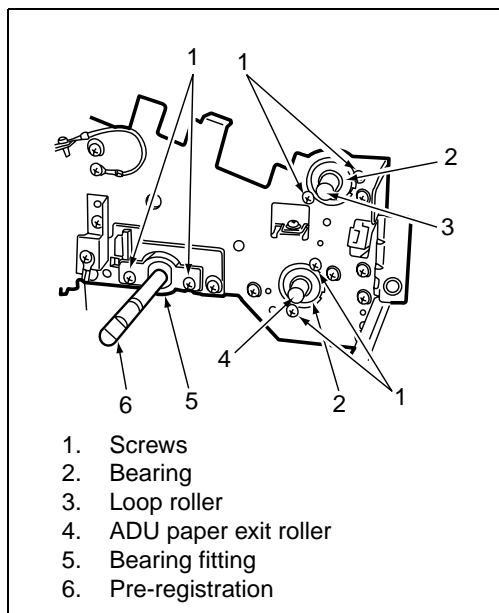
⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

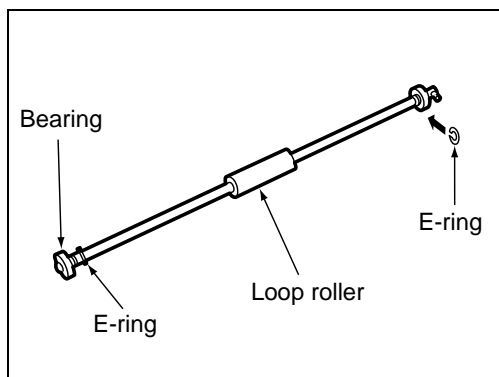
- (1) Draw out the ADU stand from the main body.
- (2) Remove the registration motor assembly. See [13] Removing and Reinstalling the Registration Motor (M12) Assembly.
- (3) Open the second paper feed unit open/close guide A.
- (4) Remove the E-ring and spacer from each gear.
- (5) Detach the timing belt.
- (6) Remove the loop roller pulley and pull the pin from the shaft.
- (7) Remove the ADU paper exit roller pulley and pull the pin from the shaft.



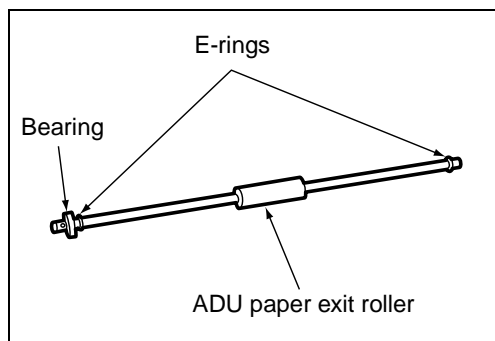
- (8) Remove the two screws to slide the loop roller and ADU paper exit roller bearings to the front.
- (9) Remove the two screws to release the bearing fitting.
- (10) Pull out the loop roller, ADU paper exit roller, and pre-registration roller.



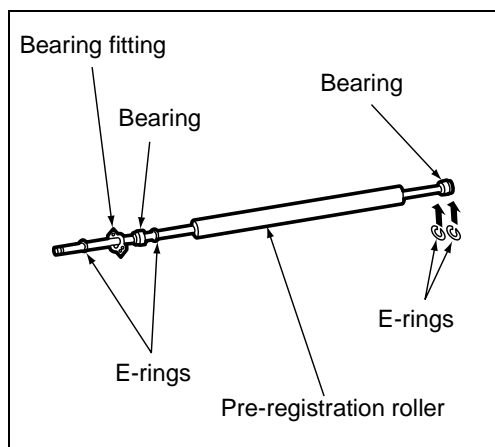
- (11) Remove the two E-rings and one bearing from the loop roller.



- (12) Remove the two E-rings and one bearing from the ADU paper exit roller.



- (13) Remove the four E-rings, two bearings and one bearing fitting from the pre-registration roller.



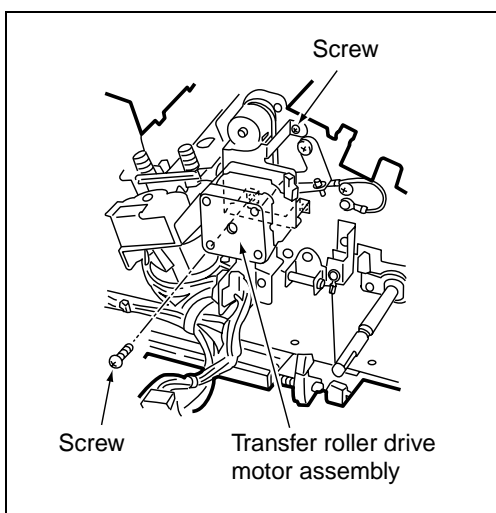
- (14) Reinstall the above parts following the removal steps in reverse.

[15] Removing and Reinstalling the Pre-transfer Roller and Pre-registration Loop Roller

⚠ Warning: The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

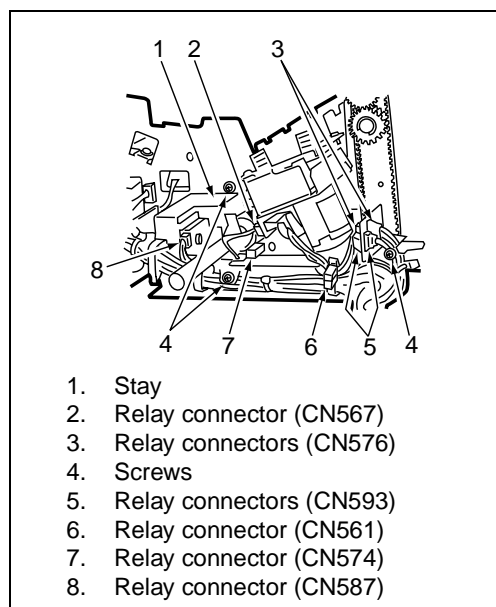
- (1) Draw out the ADU stand from the main body.
- (2) Remove the registration motor assembly. See [13] Removing and Reinstalling the Registration Motor (M12) Assembly.
- (3) Remove the two screws to detach the transfer roller drive motor (M9) assembly.



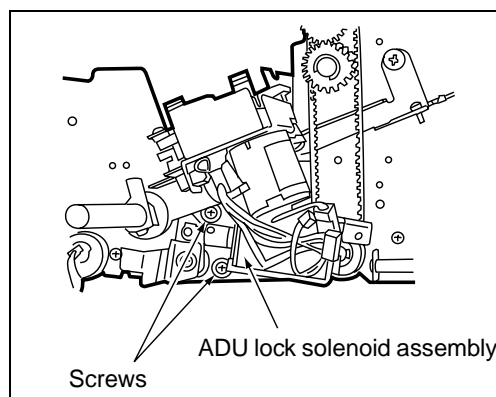
- (4) Disconnect eight relay connectors (CN561, 567, 574, 576, 587, 593).

Caution: Each relay connector (CN567, 574, 576, 593) consists of two plugs and one socket. For CN576 and 593, disconnect two plugs from each connector. For other connectors, disconnect one plug from each connector as shown below.

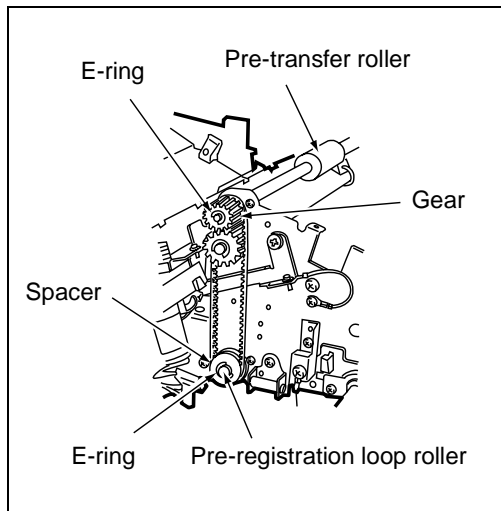
- (5) Release the wiring harness from the stay.
- (6) Remove the three screws to detach the stay.



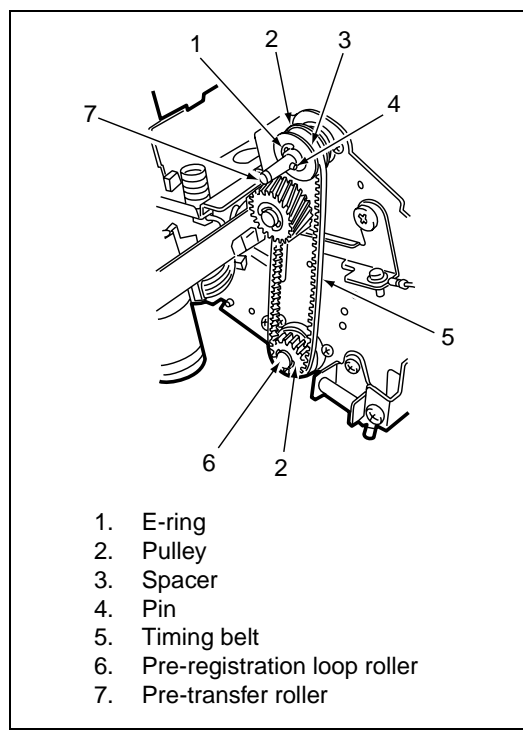
- (7) Remove the two screws to remove the ADU lock solenoid assembly.



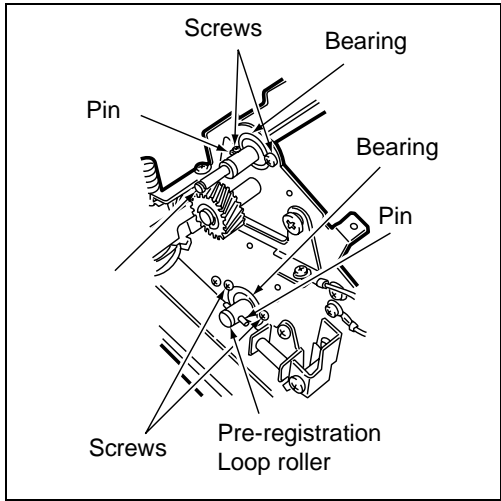
- (8) Remove one E-ring from the pre-transfer roller to detach the gear.
- (9) Remove one E-ring from the pre-registration loop roller to detach one spacer.



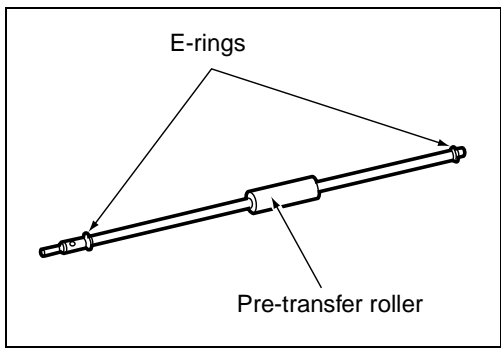
- (10) Remove one pin, one E-ring, and one spacer from the pre-transfer roller.
- (11) Detach the timing belt.
- (12) Remove the pre-transfer roller pulley and pre-registration loop roller pulley.



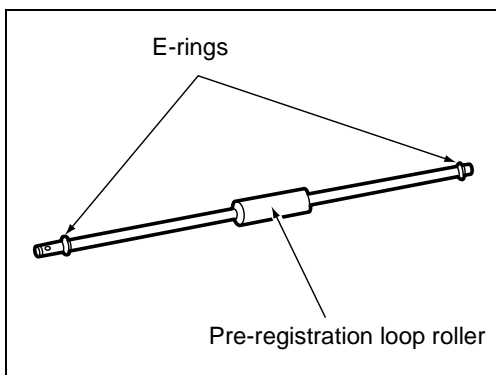
- (13) Pull one pin from each roller.
- (14) Remove the two screws to slide the pre-transfer roller bearing to the front, and remove the two screws to slide the pre-registration loop roller pulley to the front.
- (15) Slide the pre-transfer roller shaft toward the front side, and release the shaft's rear side first, then hold and pull out the shaft's front side by sliding its rear side upward.
- (16) Remove the pre-registration loop roller shaft by pulling it out from the mount bracket.



- (17) Remove the two E-rings from the pre-transfer roller.



- (18) Remove the two E-rings from the pre-registration loop roller.



- (19) Reinstall the above parts following the removal steps in reverse.

[16] Removing and Reinstalling the ADU Reverse Roller

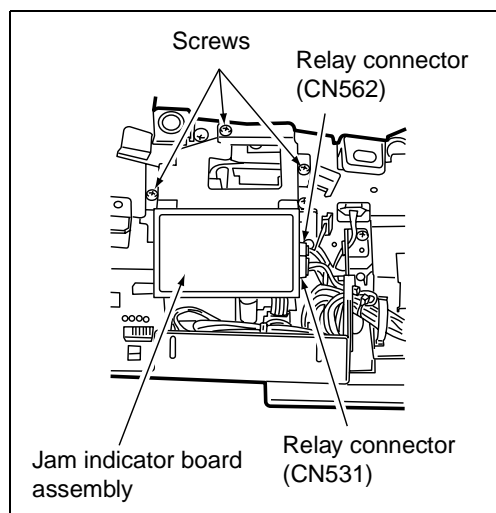
Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Disconnect the two relay connectors (CN531, 562).

Caution: Each relay connector consists of two plugs and one socket. Disconnect one plug from each connector as shown below.

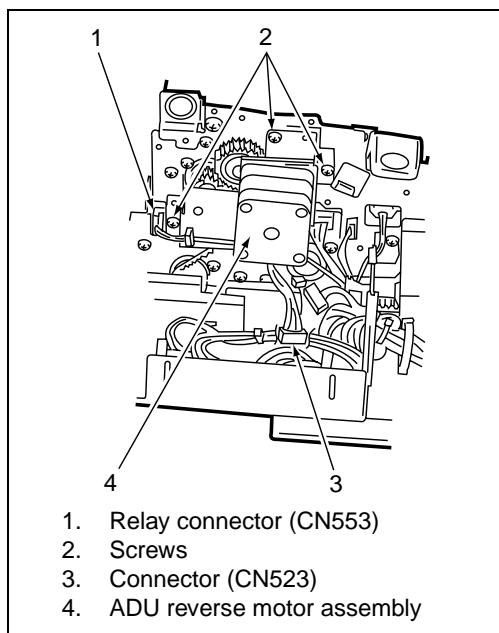
- (3) Remove the three screws to detach the jam indicator board assembly.



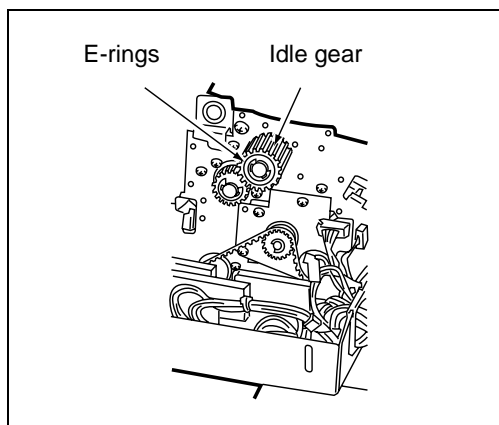
- (4) Disconnect one relay connector (CN553) and one connector (CN523).

Caution: The relay connector (CN553) consists of two plugs and one socket. Disconnect one plug shown below.

- (5) Remove the three screws to detach the ADU reverse motor (M7) assembly.

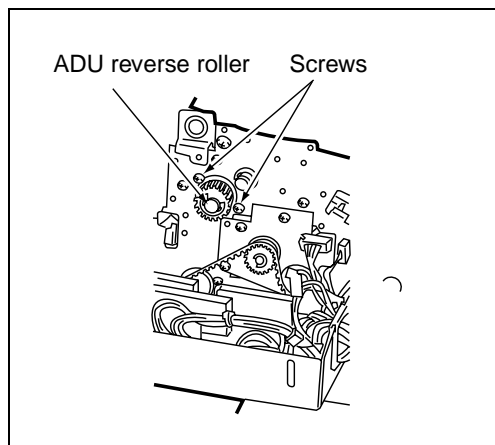


- (6) Remove one E-ring to detach the idle gear.

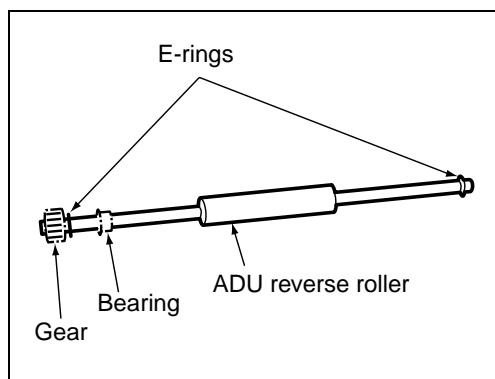


- (7) Remove the two screws, and release the bearing.

- (8) Pull out the ADU reverse roller.



- (9) Remove the two E-rings from the ADU reverse roller.



- (10) Reinstall the above parts following the removal steps in reverse.

[17] Removing and Reinstalling the ADU Stand Drive Board Assembly

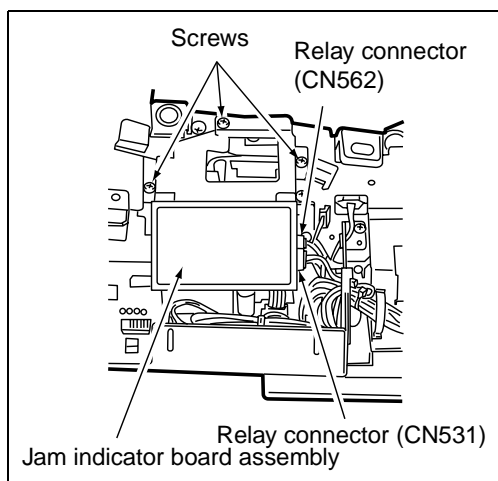
⚠ Warning: The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Disconnect the two relay connectors (CN531, 562).

Caution: Each relay connector consists of two plugs and one socket. Disconnect one plug from each connector as shown below.

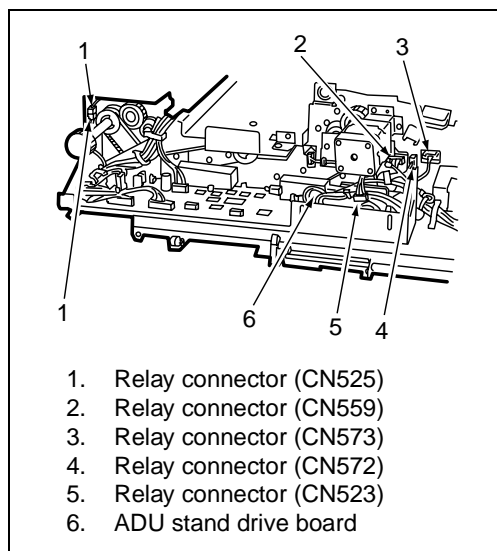
- (3) Remove the three screws to detach the jam indicator board assembly.



- (4) Disconnect the fire relay connectors (CN523, 525, 559, 572, 573).

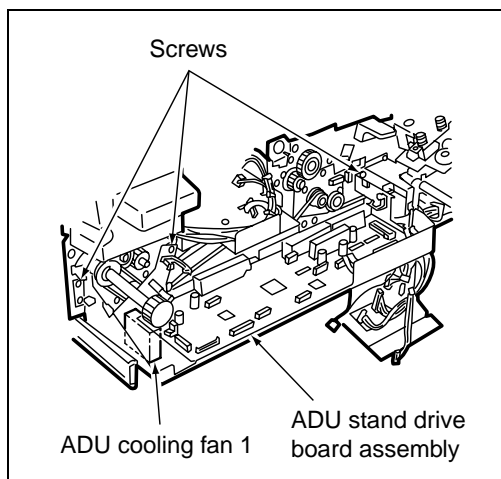
Caution: Each relay connector consists of two plugs and one socket. For CN525, disconnect two plugs. For other relay connectors, disconnect one plug from each connector as shown below.

- (5) Disconnect all the 11 connectors on the ADU stand drive board.



- (6) Release the wiring harness from the ADU stand drive board assembly.

- (7) Remove the three screws to detach the ADU stand drive board assembly.



- (8) Reinstall the above parts following the removal steps in reverse.

[18] Removing and Reinstalling the ADU Horizontal Conveyance Rollers 1 and 2

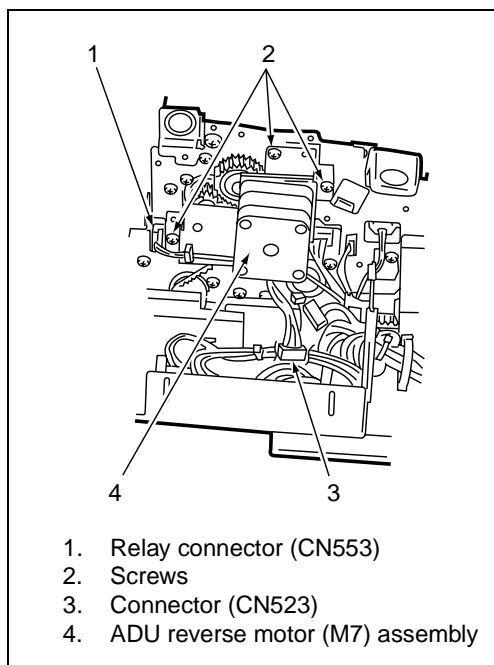
⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the ADU stand drive board assembly.
- (3) Disconnect relay connector (CN553) and connector (CN523).

Caution: The relay connector (CN553) consists of two plugs and one socket. Disconnect one plug shown below.

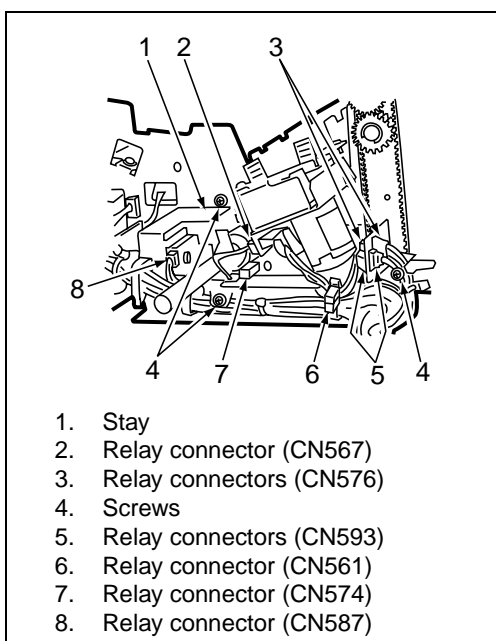
- (4) Remove the three screws to detach the ADU reverse motor (M7) assembly.



- (5) Disconnect eight relay connectors (CN561, 567, 574, 576, 587, 593).

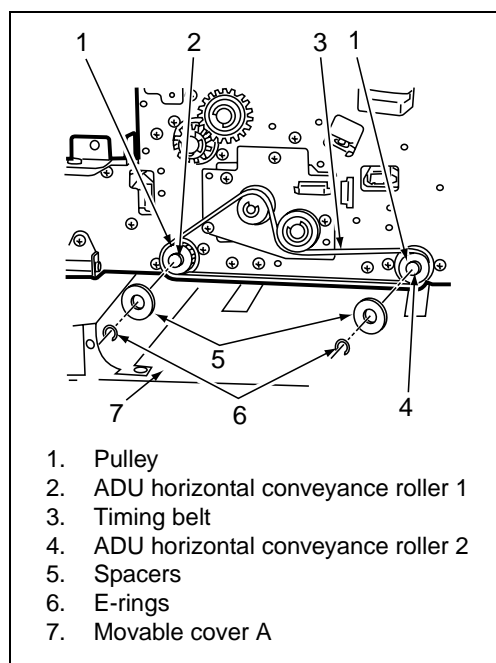
Caution1: Each relay connector (CN567, 574, 576, 593) consists of two plugs and one socket. For CN576 and 593, disconnect two plugs from each connector. For other connectors, disconnect one plug from each connector as shown below.

- (6) Release the wiring harness from the stay.
(7) Remove the three screws to detach the stay.

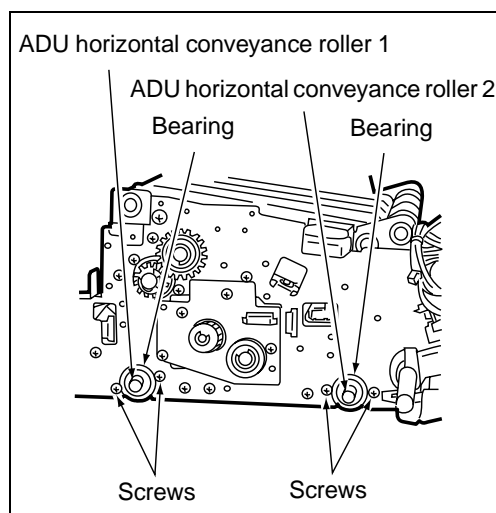


- (8) Open ADU horizontal conveyance unit open/close cover A.
(9) Remove one E-ring and one spacer from each of ADU horizontal conveyance rollers 1 and 2.
(10) Detach the timing belt.

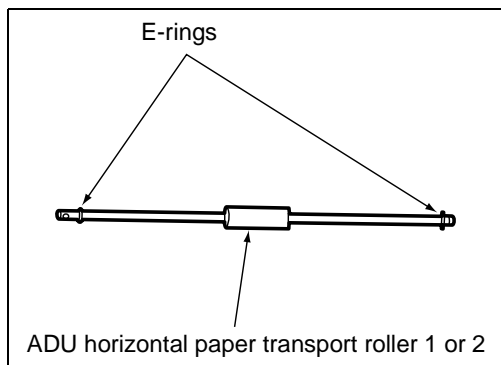
- (11) Remove pulley from each of ADU horizontal conveyance rollers 1 and 2.



- (12) Remove the two screws and slide each bearing forward to remove it.
(13) Pull out each roller.



- (14) Remove the two E-rings from each roller.



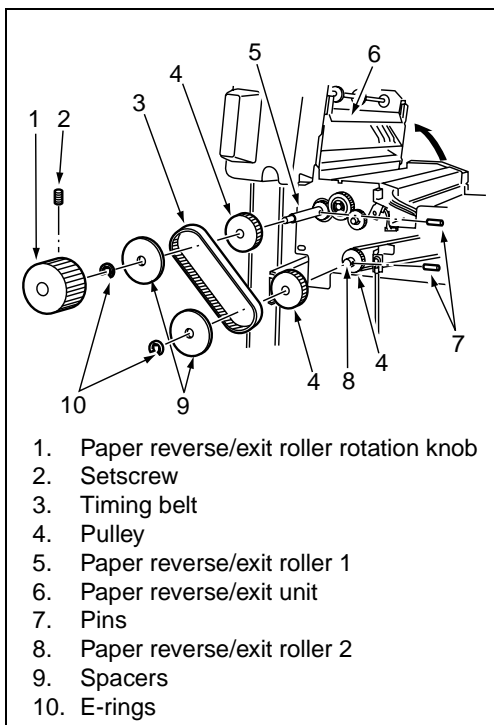
- (15) Reinstall the above parts following the removal steps in reverse.

[19] Removing and Reinstalling the Paper Reverse/Exit Rollers 1, 2, and 3

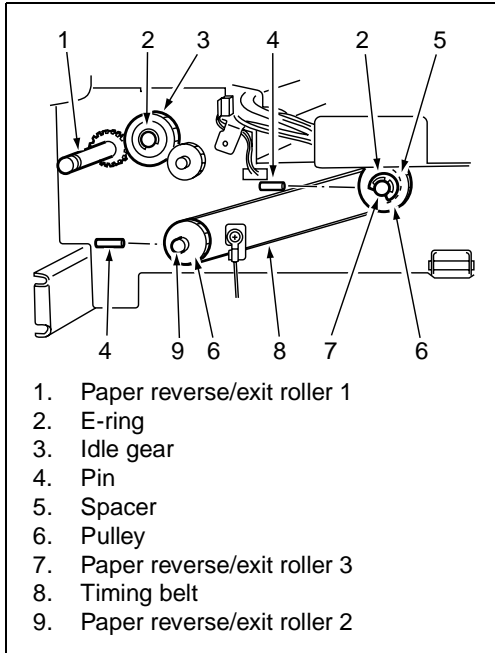
⚠ Warning: The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the ADU stand drive board assembly.
- (3) Open the paper reverse/exit unit.
- (4) Loosen one setscrew to detach the reverse paper exit roller rotation knob.
- (5) Remove one E-ring and one spacer from each of paper reverse/exit rollers 1 and 2.
- (6) Detach the timing belt.
- (7) Remove one pulley from each roller.
- (8) Pull one pin out of each roller.

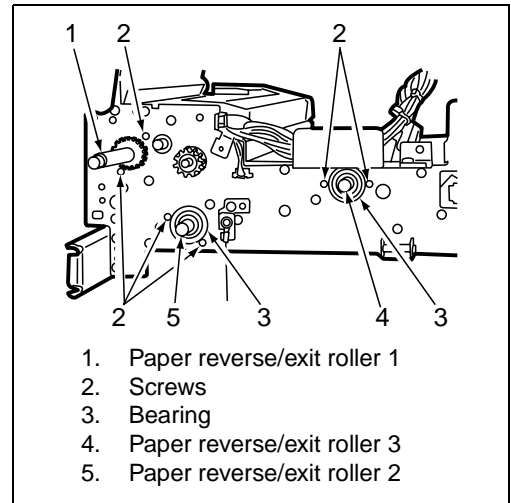


- (9) Remove one E-ring to detach the idle gear.
- (10) Remove one E-ring from paper reverse/exit roller 3 and remove one spacer.
- (11) Detach the timing belt.
- (12) Remove one pulley from each of paper reverse/exit rollers 2 and 3 and remove one pin.

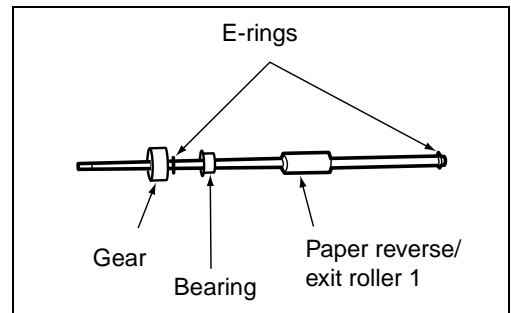


- (13) Remove two screws, and release the bearing.
- (14) Remove two screws and slide the bearing to the front to remove it.

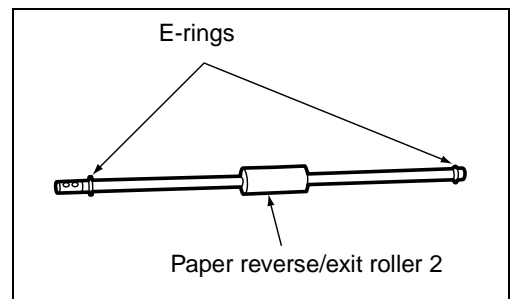
- (15) Pull out each roller.



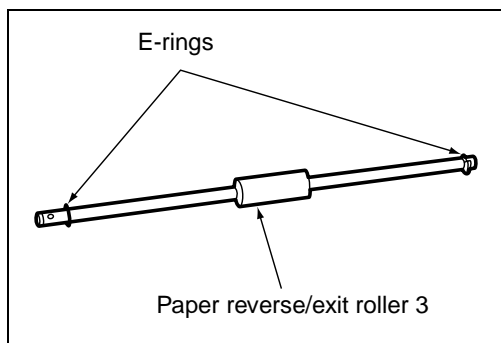
- (16) Remove the two E-rings from paper reverse/exit roller 1.



- (17) Remove the two E-rings from paper reverse/exit roller 2.



- (18) Remove the two E-rings from paper reverse/exit roller 3.



- (19) Reinstall the above parts following the removal steps in reverse.

[20] Removing and Reinstalling the Paper Reverse/Exit Unit Entrance Roller

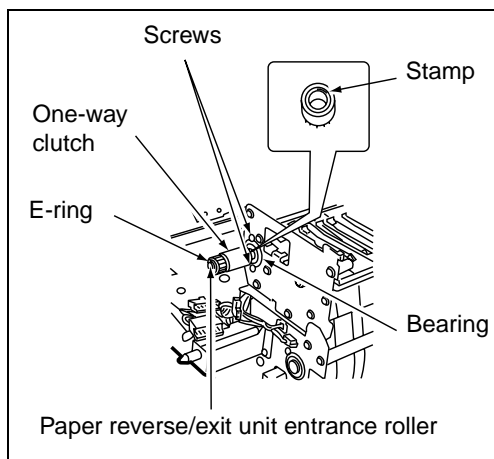
⚠ Warning: The interlock which is turned off when the front right or left door opens/closes, should never be turned on forcibly with the ADU stand drawn out.

a. Procedure

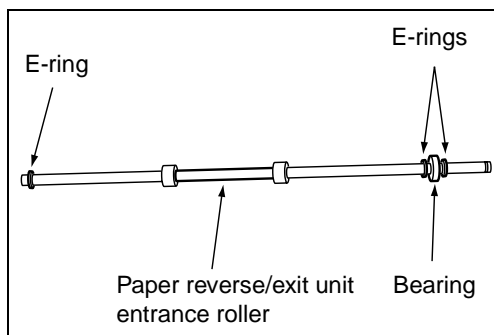
- (1) Draw out the ADU stand from the main body.
- (2) Hold the paper reverse/exit unit down toward left.
- (3) Remove one E-ring to detach the one-way clutch.

Caution: When reinstalling the one-way clutch, pay attention to the marking.

- (4) Remove the two screws to slide one bearing to the rear side.
- (5) Pull out the paper reverse/exit unit entrance roller.



- (6) Remove the three E-rings and one bearing from the paper reverse/exit unit entrance roller.



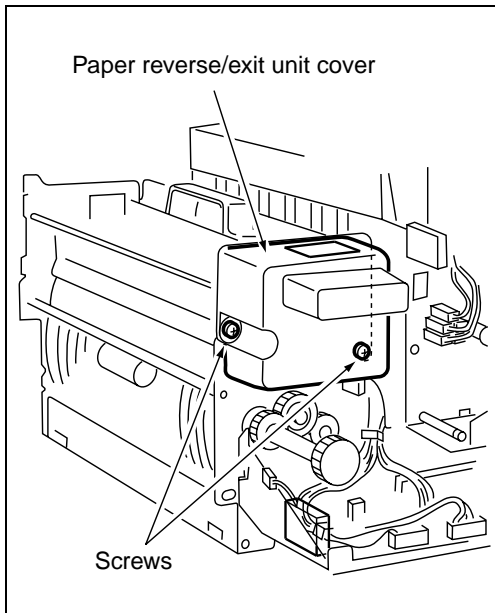
- (7) Reinstall the above parts following the removal steps in reverse.

[21] Removing and Reinstalling the Paper Reverse/Exit Switchover Gate

⚠ Warning: The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

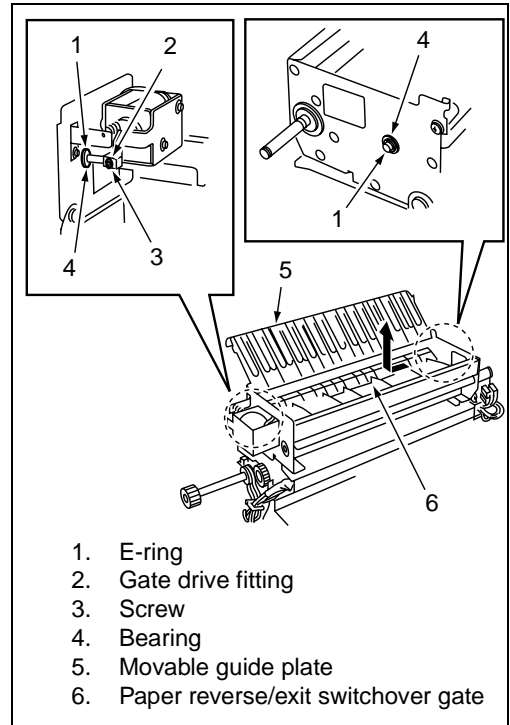
a. Procedure

- (1) Draw out the ADU stand from the main body.
- (2) Remove the two screws to detach the paper reverse/exit unit cover.



- (3) Remove one screw to release the gate drive fitting.
- (4) Remove each E-ring and bearing from the front and rear.

- (5) Open the jam access guide plate to remove the paper reverse/exit switchover gate.

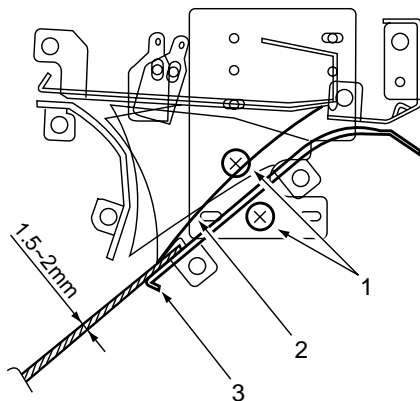


- (6) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the paper reverse/exit switchover gate, must perform the following adjustment.

Loosen the two paper reverse/exit switchover gate installation adjustment screws.

Stack fifteen plain papers (64g/m²) and insert them between the gate and the paper guide plate, then tighten the adjustment screws.



1. Gate installation adjustment screws (2)
2. Reversal/paper exit switchover
3. Paper guide plate

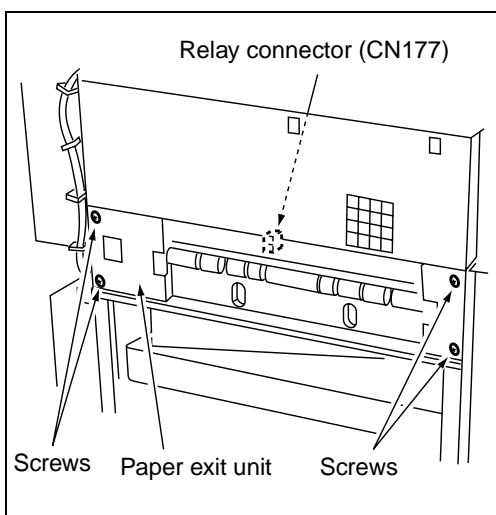
[22] Removing and Reinstalling the Paper Exit Roller

⚠ Warning: The interlock which is turned OFF when the front right or left door opens/closes, should never be turned ON forcibly with the ADU stand drawn out.

a. Procedure

- (1) Remove the left side cover. (See "EXTERNAL SECTION.")
- (2) Draw out the ADU stand from the main body.
- (3) Remove the four screws to detach the paper exit unit.
- (4) Disconnect one relay connector (CN177) in the paper exit unit.

Caution: Each relay connector consists of two plugs and one socket. For CN177, disconnect only the plug shown below.

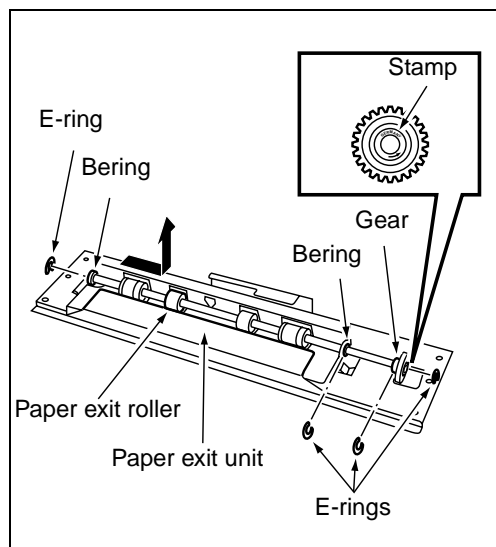


- (5) Remove one E-ring to detach the gear.

Caution: When installing the gear, pay attention to the orientation of the marking on the gear.

- (6) Remove the three E-rings to detach the left bearing and right bearing.

- (7) Remove the paper exit roller from the paper exit unit.



- (8) Reinstall the above parts following the removal steps in reverse.

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FIXING UNIT

⚠ Caution:

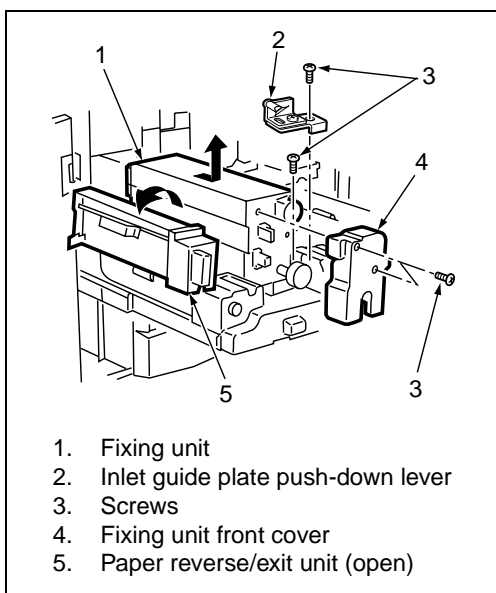
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Fixing Unit

⚠ Caution: Do not touch the fixing unit immediately after turning OFF the main switch because it is very hot and you may suffer burns. Wait until the fixing unit has cooled down sufficiently before working on it.

a. Procedure

- (1) Draw out the ADU stand. (See "ADU UNIT.")
- (2) Loosen two screws and detach the fixing unit front cover.
- (3) Open the paper reverse/exit unit.
- (4) Remove one screw to detach the inlet guide plate push-down lever.
- (5) Remove one screw to draw out the fixing unit. Then, remove it upward.



- (1) Reinstall the above parts following the removal steps in reverse.

[2] Removing and Reinstalling the Fixing Unit Top Cover

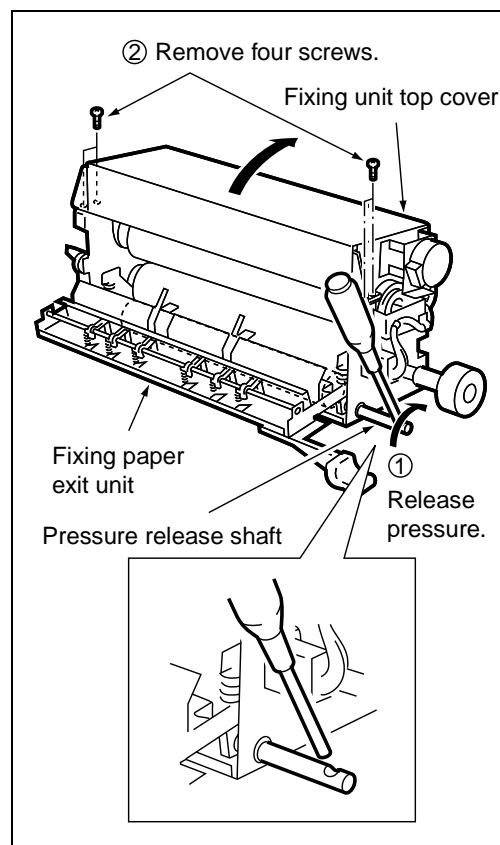
⚠ Caution: Before opening the fixing unit top cover, be sure to rotate the pressure release shaft clockwise to release the lower roller. After closing the fixing unit top cover, be sure to rotate the pressure release shaft counter-clockwise to apply pressure to the lower roller.

a. Procedure

- (1) Draw out the ADU stand. (See "ADU UNIT.")
- (2) Insert a screwdriver or the like in the hole in the pressure release shaft and rotate the pressure release shaft to release pressure.

Caution: Perform pressure release with the fixing unit top cover closed.

- (3) Remove the four screws to open the fixing unit top cover.



FIXING UNIT

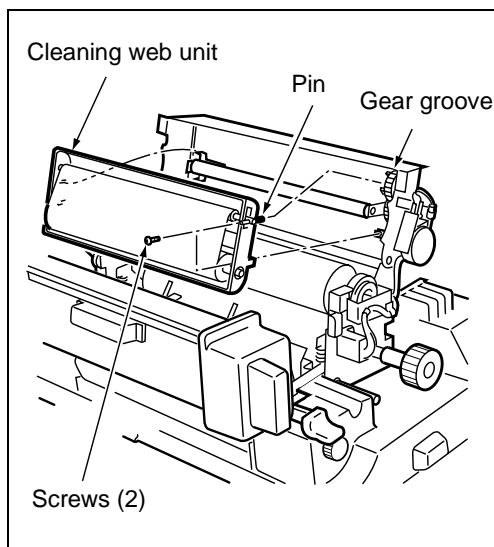
- (4) Close the fixing unit top cover following the opening steps in reverse.

Caution: When the fixing unit top cover has been closed and secured with the four screws, pressure must be applied to it without fail.

[3] Replacing the Cleaning Web

a. Procedure

- (1) Draw out the ADU stand. (See "ADU UNIT.")
- (2) Open the fixing unit top cover.
- (3) Remove the two screws to detach the cleaning web unit.



- (4) Reinstall the above parts following the removal steps in reverse.

Caution1: When installing the cleaning web, align the groove in the take-up gear with the shaft pin on the unit, keeping its tension.

Caution2: After replacing the cleaning web, make sure to reset the count value of the fixing unit cleaning web by "Copy Count by Parts to be Replaced (Fixed Parts)" in the 25 mode.

[4] Replacing the Fixing Heater Lamps (Upper/Roller) (L2, L3)

⚠ Caution: Do not touch the fixing heater lamp with bare hands.

Caution1: Install the heater lamp with the maker mark indication side facing front.

Caution2: The heater lamp should not touch the inner surface of the upper roller.

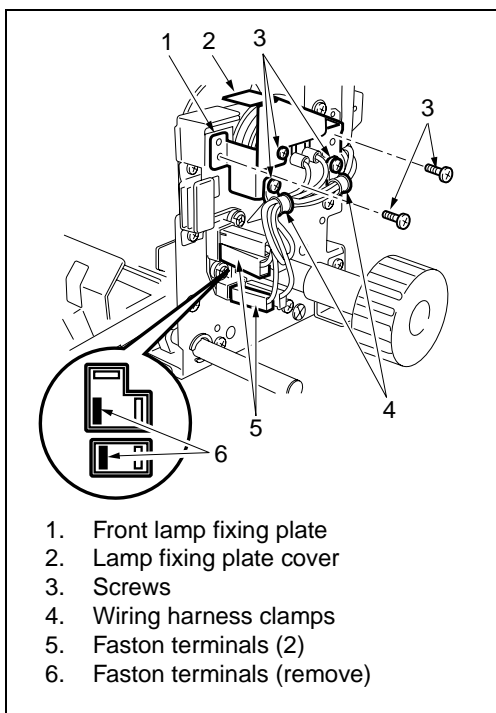
Caution3: When replacing a heater lamp, be sure to insert the lamp end in the lamp terminal securely.

a. Procedure

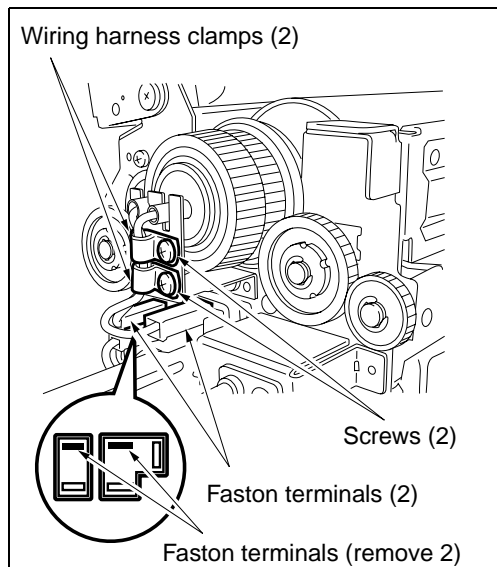
- (1) Remove the fixing unit from the main body.
- (2) Open the fixing unit top cover.
- (3) Remove the two screws at the front to detach the two wire harness clamps.

Caution: Install the wiring clamp screws through the lower mounting holes. If installed through a wrong mounting hole, the fixing unit front cover cannot be installed.

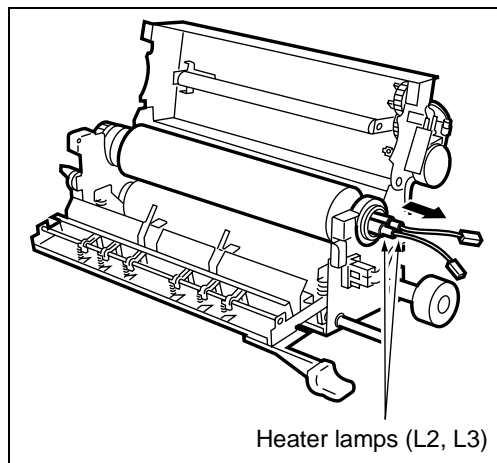
- (4) Remove one screw and detach the lamp fixing plate cover.
- (5) Remove the two screws to detach the front lamp fixing plate.
- (6) Remove the two Faston terminals.



- (7) Remove the two screws at the back to detach two wiring harness clamps.
- (8) Remove the two Faston terminals at the back.



- (9) Pull out the fixing heater lamps (L2, L3) from the front side of the fixing upper roller.

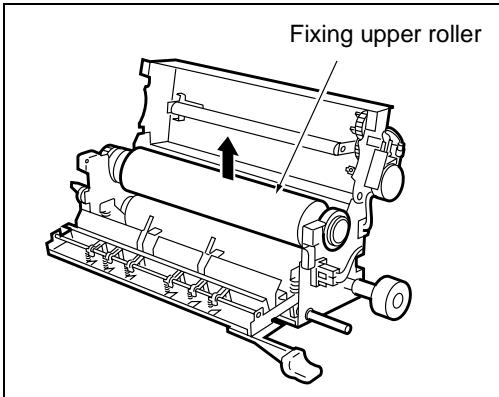


- (10) Reinstall the above parts following the removal steps in reverse.

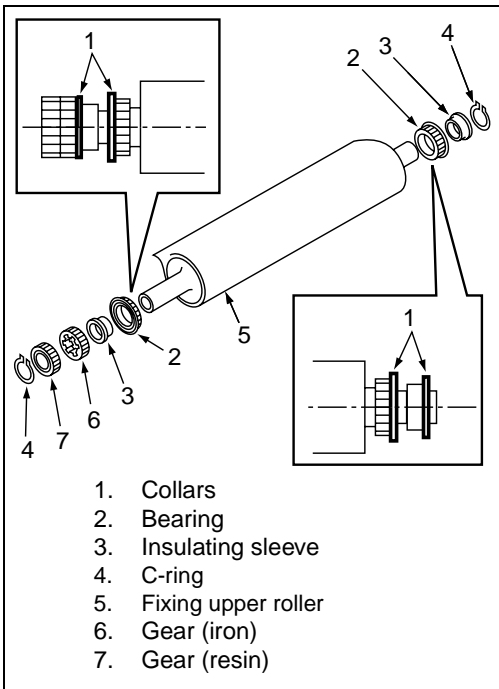
Caution: When installing new lamps, pay attention to their orientation. The size of the lamp terminal mounting hole in the front lamp fixing plate is different from that in the rear lamp fixing plate. The lamp inserted in the fixing upper roller in the opposite direction cannot be secured properly.

[5] Removing and Reinstalling the Fixing Upper Roller

- a. Procedure**
- (1) Remove the fixing unit from the main body.
 - (2) Release the fixing unit lower contact with the upper roller.
 - (3) Open the fixing unit top cover.
 - (4) Remove the fixing upper roller heater lamps (L2, L3).
 - (5) Remove the fixing upper roller upward.



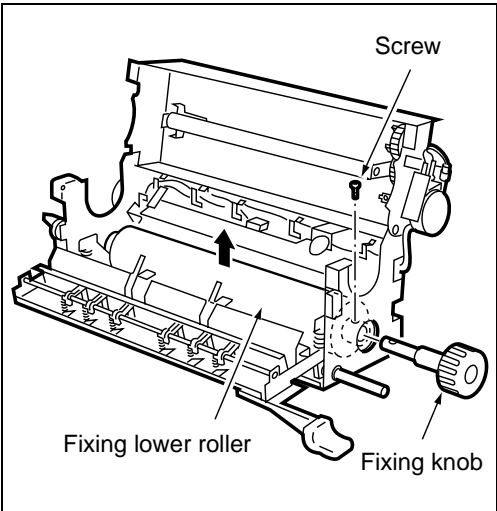
- (6) Remove the two C-rings, two gears, two bearings, and two insulating sleeves from the fixing upper roller.



- (1) Reinstall the above parts following the removal steps in reverse.

[6] Removing and Reinstalling the Fixing Lower Roller

- a. Procedure**
- (1) Remove the fixing upper roller.
 - (2) Remove one screw to detach the fixing knob.
 - (3) Remove the fixing lower roller upward.



- (4) Reinstall the above parts following the removal steps in reverse.

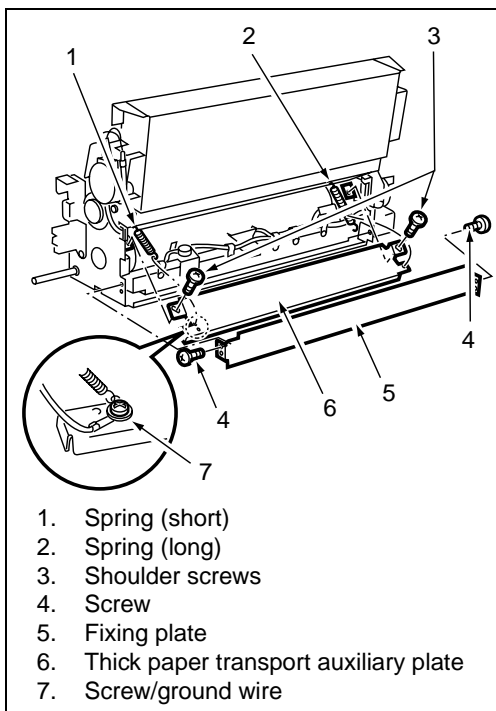
[7] Removing and Reinstalling the Fixing Heat Roller Assembly

a. Procedure

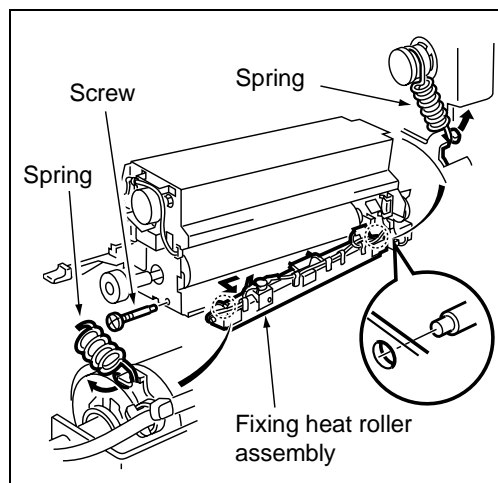
- (1) Remove the fixing unit from the main body.
- (2) Remove the two springs and one screw (along with the ground cable) from the thick paper transport auxiliary plate.

Caution: The front and rear springs are different in size and length. Install them properly.

- (3) Remove the two shoulder screws to detach the thick paper transport auxiliary plate.
- (4) Remove the two screws to detach the fixing plate.



- (1) Remove the two springs and one screw to detach the fixing heat roller assembly.



Caution: When installing the fixing heat roller assembly, be sure to fit the guide pin in the guide hole on the rear side.

- (2) Reinstall the above parts following the removal steps in reverse.

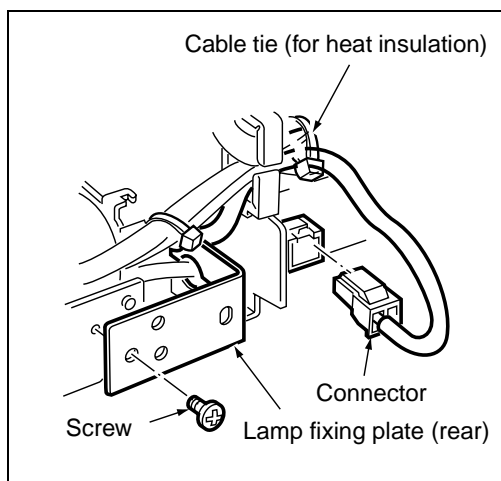
[8] Replacing the Heater Lamp (Heat roller) (L4)

⚠ Caution: Do not touch the fixing heater lamp (heat roller)(L4) with bare hands.

Caution: Install the heater lamp (heat roller) (L4) with the maker mark indication side facing front.

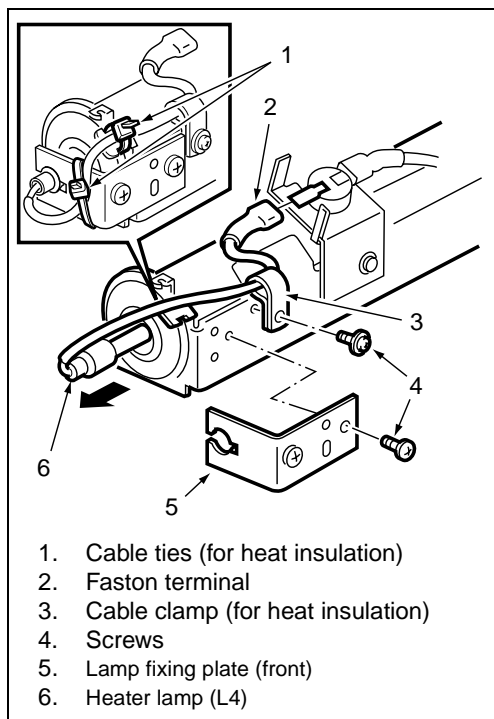
a. Procedure

- (1) Remove the fixing heat roller assembly.
- (2) Cut the insulating cable tie to disconnect the connector (CN462).
- (3) Remove one screw to detach the lamp fixing plate (rear).



- (4) Cut two insulating cable ties and remove the screw securing the cable clamp to remove the Faston terminal.
- (5) Remove one screw to detach the lamp fixing plate (front).

- (6) Remove the heater lamp (L4) from the front side.



- (1) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling the lamp, pay attention to its orientation.

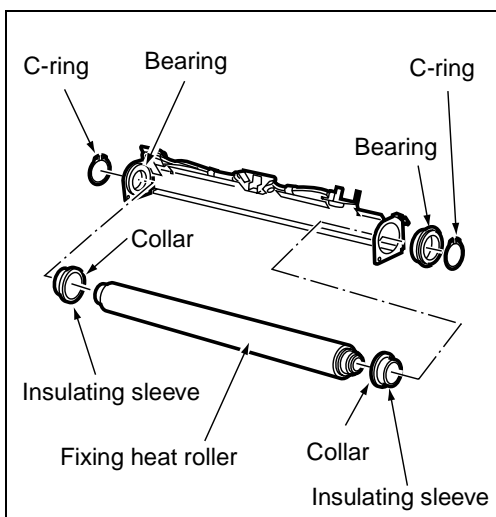
[9] Removing and Reinstalling the Fixing Heat Roller

⚠ Caution: Do not touch the fixing heater lamp (lower)(L4) with bare hands.

a. Procedure

- (1) Remove the fixing heat roller assembly.
- (2) Remove the heater lamp (lower) (L4).
- (3) Remove the two C-rings and the front bearing to remove the fixing heat roller.
- (4) Remove two insulating sleeves from the fixing heat roller.

Caution: Reinstall the front and rear insulating sleeves with the collars facing toward the fixing heat roller.

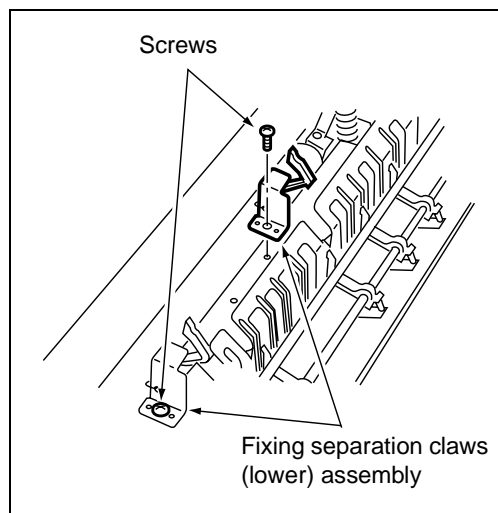


- (5) Reinstall the above parts following the removal steps in reverse.

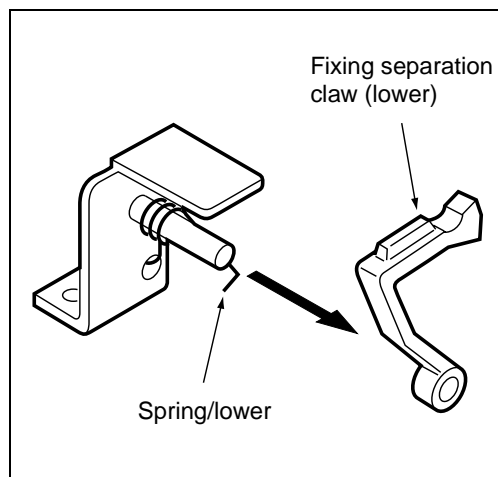
[10] Removing and Reinstalling the Fixing Separation Claws (Lower)

a. Procedure

- (1) Open the fixing paper exit unit.
- (2) Remove the two screws to detach the fixing separation claws (lower) assembly.



- (3) Remove the spring supporting each fixing separation claw (lower).
- (4) Remove the fixing separation claws (lower).

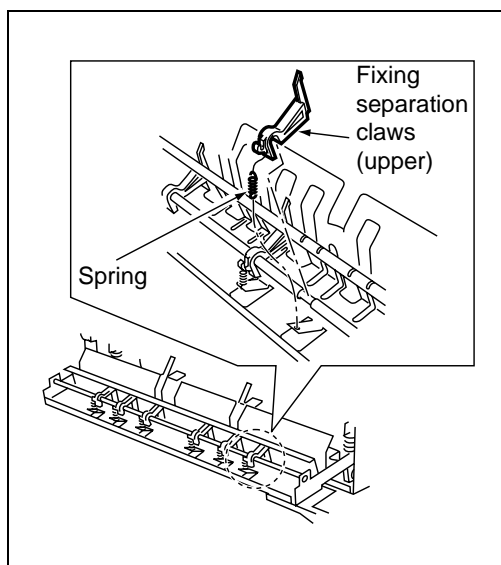


- (5) Reinstall the above parts following the removal steps in reverse.

[11] Removing and Reinstalling the Fixing Separation Claws (Upper)

a. Procedure

- (1) Open the fixing paper exit unit.
- (2) Remove the six springs connected to the fixing separation claws.
- (3) Remove the six fixing separation claws.

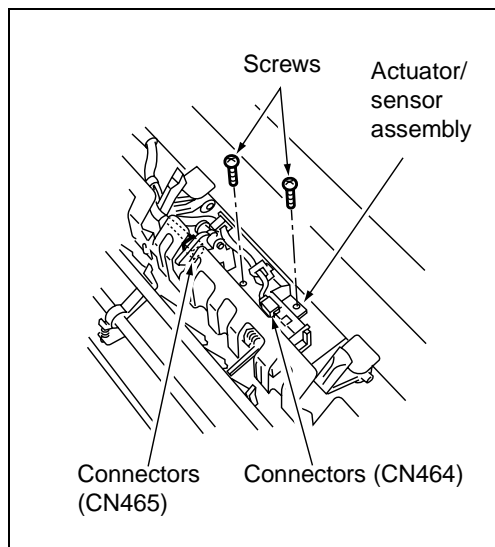


- (4) Reinstall the above parts following the removal steps in reverse.

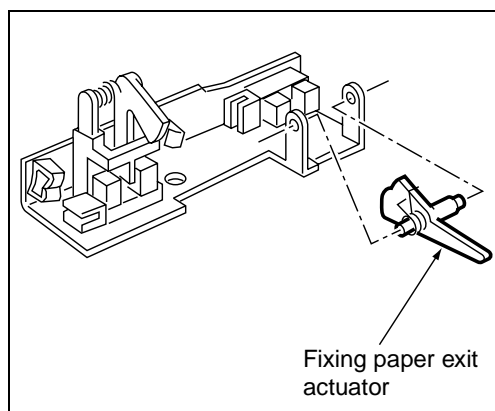
[12] Removing and Reinstalling the Actuator for Fixing Exit PS (PS2)

a. Procedure

- (1) Open the fixing paper exit unit.
- (2) Disconnect the two connectors (CN464, 465).
- (3) Remove one screw to detach the fixing separation claw (lower) (on the drive side).
- (4) Remove the two screws to detach the actuator/sensor assembly.



- (5) Remove the spring from the actuator/sensor assembly to detach the actuator for fixing exit PS (PS2).



- (6) Reinstall the above parts following the removal steps in reverse.

[13] Removing and Reinstalling Fixing Temperature Sensors 1 and 2

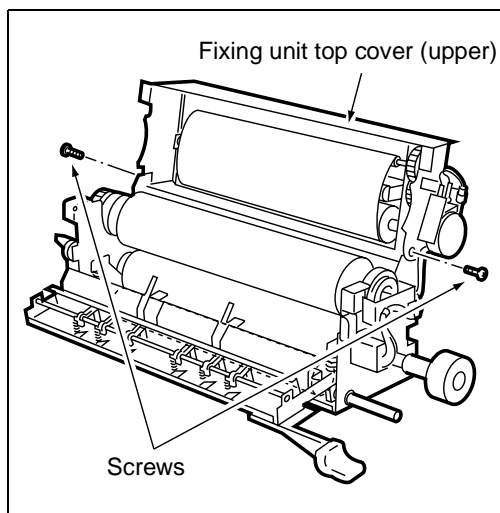
Caution1: After reinstalling fixing temperature sensor 2, make sure that the sensor touches the fixing upper roller.

Caution2: Make sure the sensor wires do not touch the fixing upper roller.

Caution3: When reinstalling fixing temperature sensor 1, adjust its position using the positioning jig and secure it with screws. Be sure to apply screw lock agent to the screws.

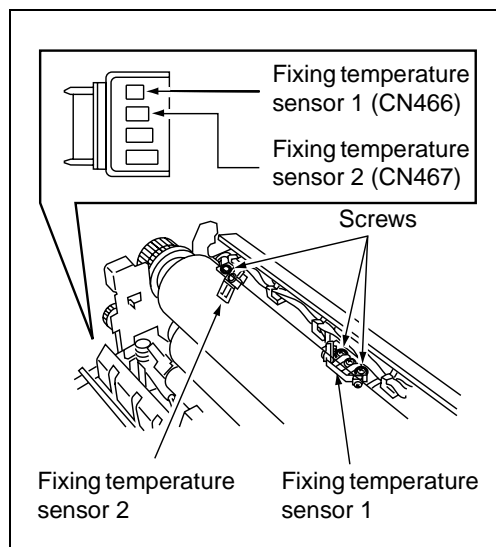
a. Removal procedure

- (1) Open the fixing unit top cover.
- (2) Remove the two screws to detach the fixing unit top cover.



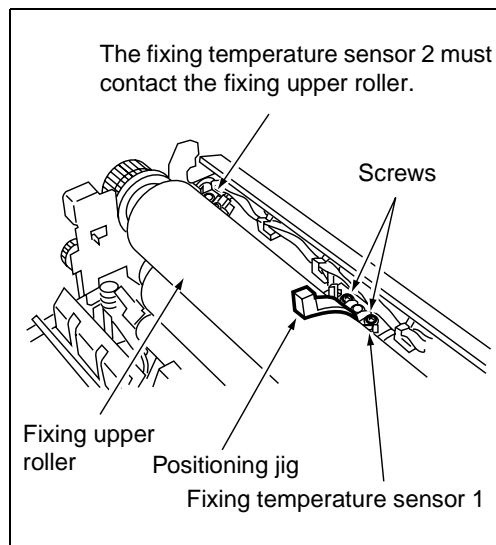
- (3) Disconnect the two connectors (fixing temperature sensor 1, CN466; fixing temperature sensor 2, CN467) and release the sensor wires from the cable guides.
- (4) Remove the two screws to detach fixing temperature sensor 1.

- (5) Remove one screw (on the fixing plate side) to detach fixing temperature sensor 2.

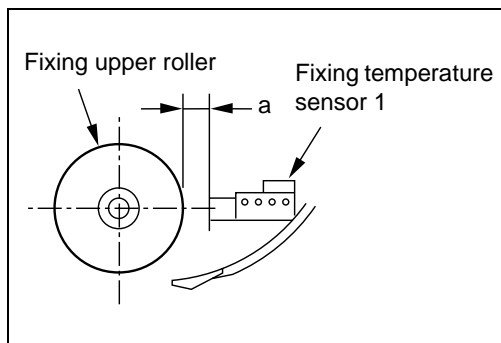


b. Reinstallation procedure

- (1) Secure fixing temperature sensor 2 with a screw.
- (2) Make sure that fixing temperature sensor 2 touches the fixing upper roller. If they do not touch each other, be sure to bring the sensor in touch with the roller.
- (3) Set a fixing temperature sensor positioning jig between fixing temperature sensor 1 and fixing upper roller, and secure fixing temperature sensor 1 with two screws so that the distance between the sensor and roller is equal to the thickness of the jig.



- a) Set the distance "a" between the fixing temperature sensor 1 and fixing upper roller so that it is equal to the thickness of the positioning jig.



Standard value of a: 0.75 ± 0.1 mm

- (4) Apply screw lock agent to the two screws securing fixing temperature sensor 1.
- (5) Secure the wires of fusion temperature sensors 1 and 2 in the wire guides, and connect their connectors.
- (6) Reinstall other parts following the removal steps in reverse.

[14] Removing and Reinstalling Fixing Temperature Sensors 3 and 4

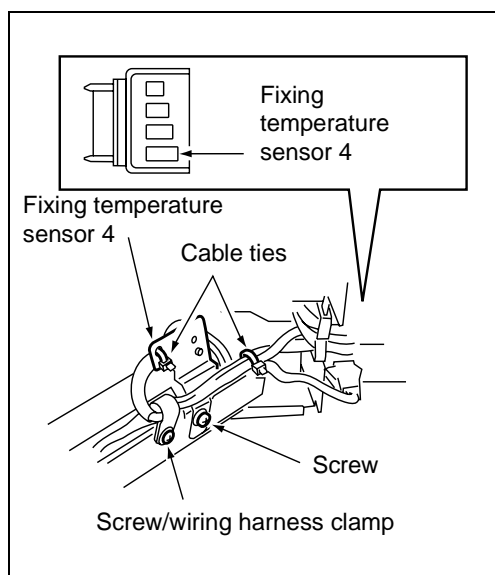
Caution1: After reinstalling fixing temperature sensor 4, make sure that the sensor touches the fixing heat roller (upper).

Caution2: Make sure the sensor wires do not touch the fixing heat roller.

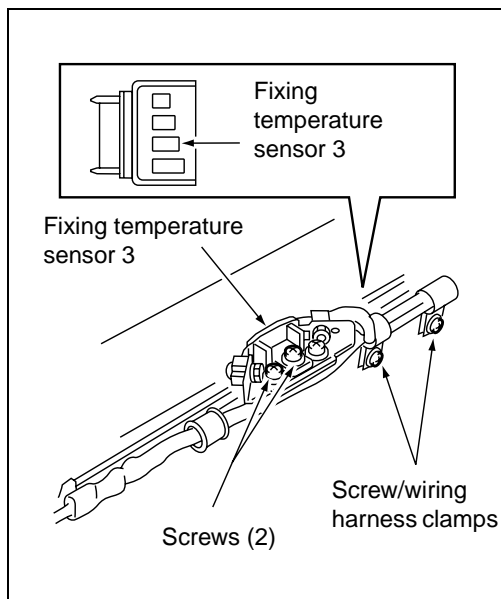
Caution3: When reinstalling fixing temperature sensor 3, adjust its position using the positioning jig and secure it with screws. Be sure to apply screw lock agent to the screws.

a. Removal procedure

- (1) Remove the fixing heat roller assembly.
- (2) Disconnect one connector (CN469), remove the screw to detach the cable clamp, and cut insulating ties.
- (3) Remove one screw (on the fixing plate side) to remove fixing temperature sensor 4.

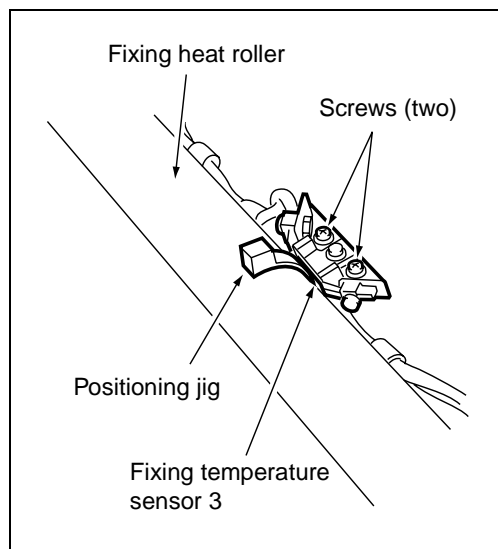


- (4) Disconnect one connector (CN468) and remove four screws to detach two wire clamps.
- (5) Remove the two screws to detach fixing temperature sensor 3.

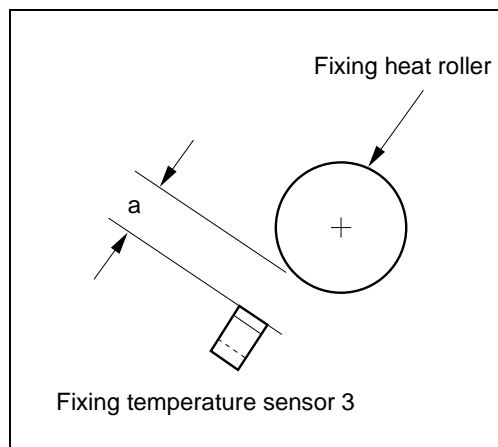


b. Reinstallation procedure

- (1) Secure fixing temperature sensor 4 with a screw.
- (2) Make sure that fixing temperature sensor 4 touches the fixing heat roller (upper). If they do not touch each other, be sure to bring the sensor in touch with the roller.
- (3) Set a fixing temperature sensor positioning jig between fixing temperature sensor 3 and fixing heat roller, and secure fixing temperature sensor 3 with two screws so that the distance between the sensor and roller is equal to the thickness of the jig.



- a) Set the distance "a" between the fixing temperature sensor 3 and fixing heat roller so that it is equal to the thickness of the positioning jig.



Standard value of $a = 0.7 \pm 0.1$ mm

- (4) Apply screw lock agent to the two screws securing fixing temperature sensor 3.
- (5) Secure the wires of fixing temperature sensors 3 and 4 with wire clamp and ties, and connect the connectors.
- (6) Reinstall other parts following the removal steps in reverse.

[15] Removing and Reinstalling the Thermostat (Upper)

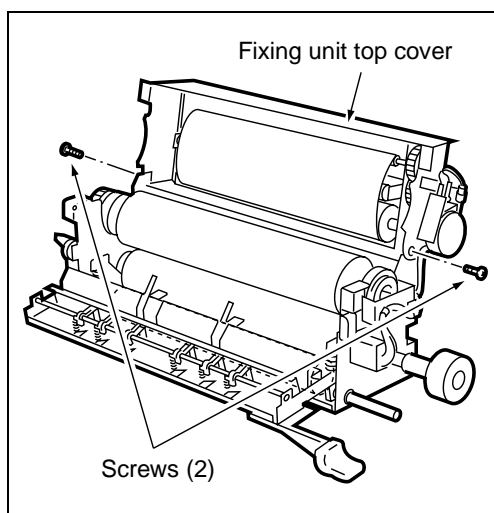
⚠ Caution: This is an important safety part. Be sure to observe the following cautions and steps when removing or reinstalling.

Caution1: After reinstalling the thermostat (upper), make sure that its wires do not touch the fixing upper roller.

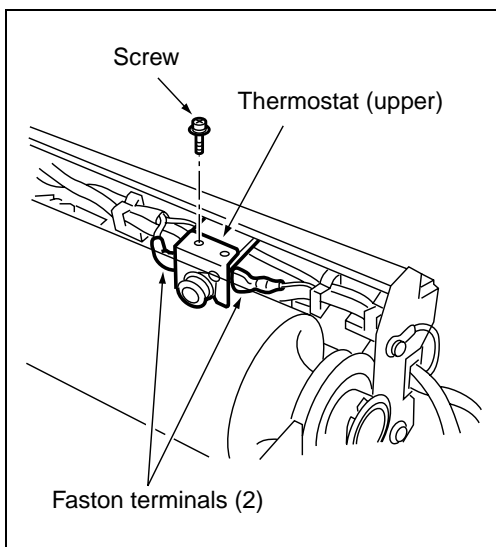
Caution2: When reinstalling the thermostat (upper), adjust its position using the thermostat PS jig/A (55VAJG031) and secure it with screws. Be sure to apply screw lock agent to the screws. Make this adjustment with pressure applied.

a. Removal procedure

- (1) Open the fixing unit top cover.
- (2) Remove the two screws to detach the fixing unit top cover.

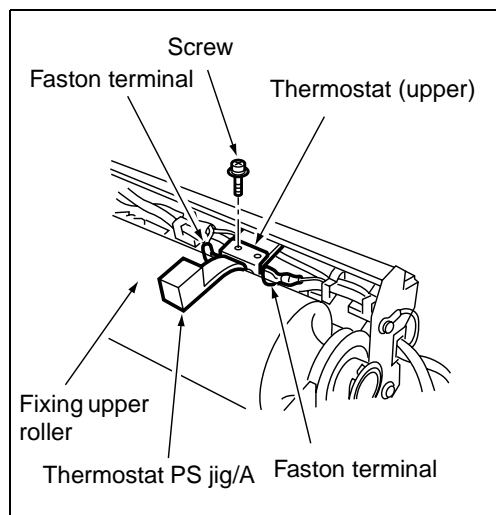


- (3) Remove one screw and remove two Faston terminals to detach the thermostat.

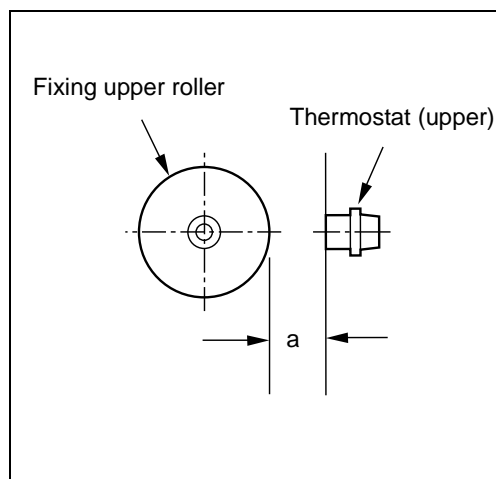


b. Reinstallation procedure

- (1) Connect two Faston terminals to the thermostat (upper).
- (2) Set a thermostat positioning jig between the thermostat (upper) and fixing upper roller, and secure the thermostat (upper) with one screw so that the distance between the roller and thermostat equal to the thickness of the jig.



- a) Set the distance "a" between the thermostat (upper) and fixing upper roller so that it is equal to the thickness of the thermostat PS jig/A.



Standard value of $a = 3.0 \pm 0.2 \text{ mm}$

- (3) Apply screw lock agent to the screw securing the thermostat (upper).
- (4) Reinstall other parts following the removal steps in reverse.

[16] Removing and Reinstalling the Thermostat (Lower)

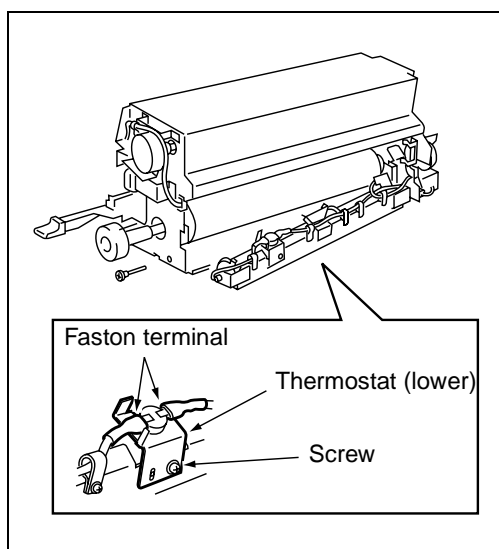
⚠ Caution: This is an important safety part. Be sure to observe the following cautions and steps when removing or reinstalling.

Caution1: After reinstalling the thermostat (upper), make sure that its wires do not touch the fixing heat roller.

Caution2: When reinstalling the thermostat (upper), adjust its position using the thermostat PS jig/B (55VAJG041) and secure it with screws. Be sure to apply screw lock agent to the screws.

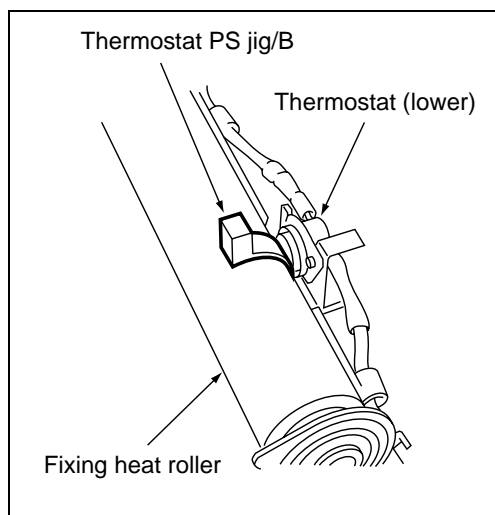
a. Removal procedure

- (1) Remove the fixing heat roller assembly.
- (2) Remove two Faston terminals from the thermostat (lower).
- (3) Remove one screw to detach the thermostat (lower).

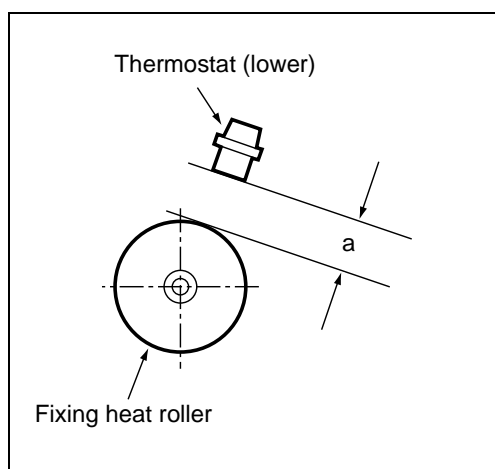


b. Reinstallation procedure

- (1) Set a thermostat PS jig/B between the thermostat (lower) and fixing heat roller, and secure the thermostat (lower) with one screw so that the distance between the roller and thermostat equal to the thickness of the jig.



- a) Set the distance "a" between the thermostat (lower) and fixing heat roller so that it is equal to the thickness of the thermostat PS jig/B.



Standard: $a = 3.0 \pm 0.20 \text{ mm}$

- (2) Connect two Faston terminals to the thermostat (lower).
- (3) Apply screw lock agent to the screw securing the thermostat (lower).
- (4) Reinstall other parts following the removal steps in reverse.

EXTERNAL SECTION

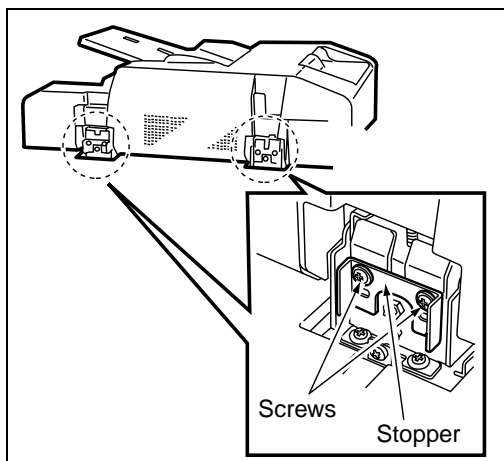
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

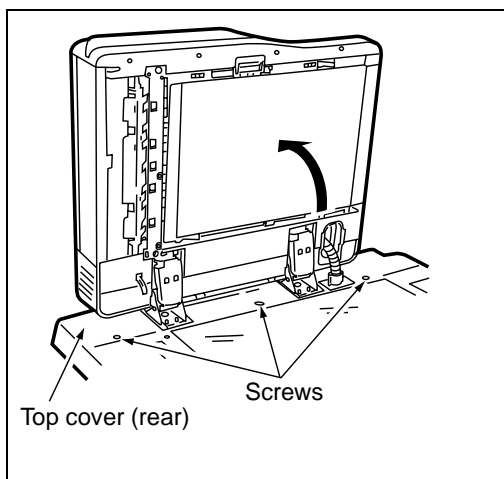
[1] Removing the RADF

a. Procedure

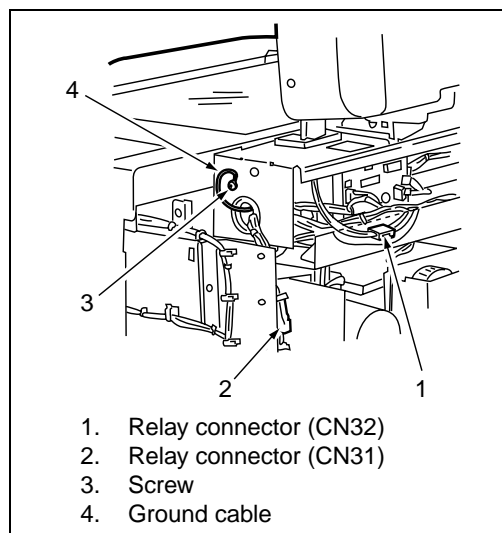
- (1) Remove the rear cover.
- (2) Remove two screws to detach the two stoppers.



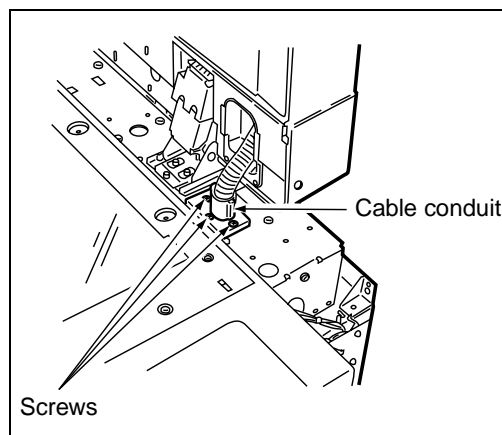
- (3) Open the RADF to the upright position.
- (4) Remove the three screws to detach the top cover (rear) of the main unit.



- (5) Remove the screw to disconnect the ground cable.
- (6) Remove the two relay connectors (CN31, CN32).

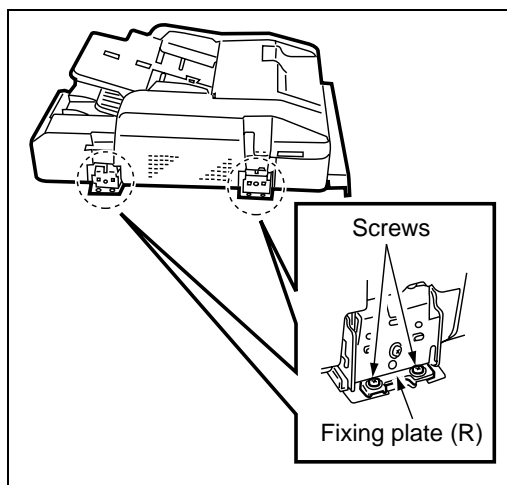


- (7) Remove the three screws to detach the cable conduit.



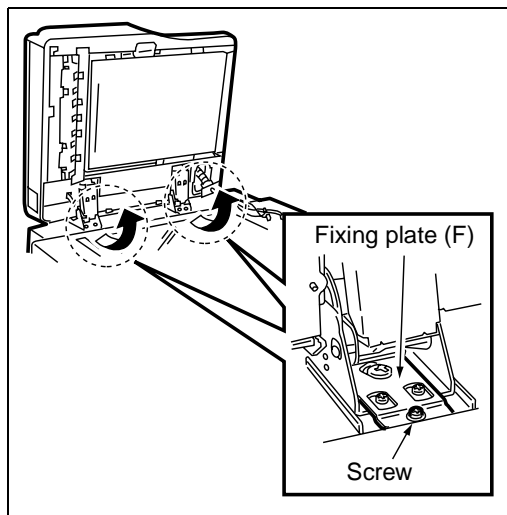
- (8) Draw the cable to the top of the main unit.

- (9) Close the RADF. Remove the two screws to detach each of the two fixing plates (R).



- (10) Open the RADF up to the upright position.
 (11) Holding the RADF, remove one screw to detach each of two fixing plates.
 (12) Holding the RADF, remove it from the main unit.

Caution: When the fixing plates (F) are removed, the RADF may fall down to the rear side. Be sure to hold the RADF while performing steps 11 and 12.



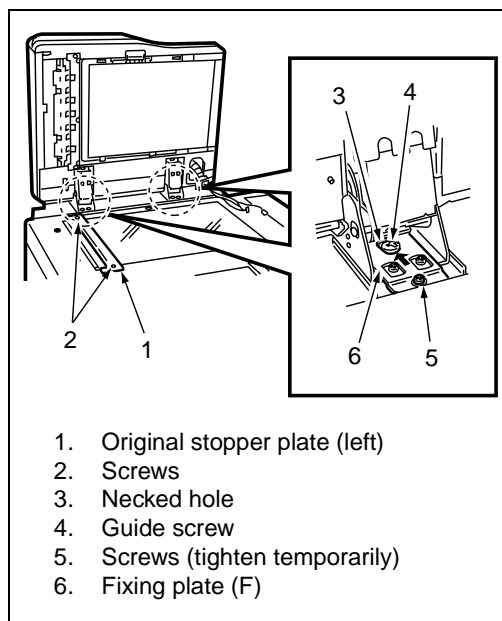
[2] Reinstalling the RADF

a. Procedure

- (1) Place the RADF on the top of the main unit and loosely secure each of the two fixing plates (F) with one screw.

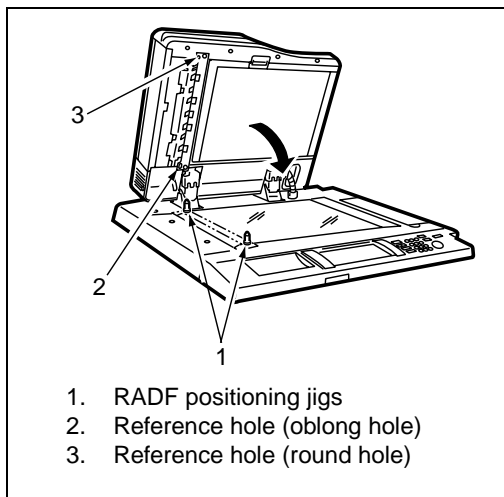
Note: The necked hole in the fixing plate (F) must fit over the guide screw.

- (2) Remove the two screws to detach the original stopper plate (left).



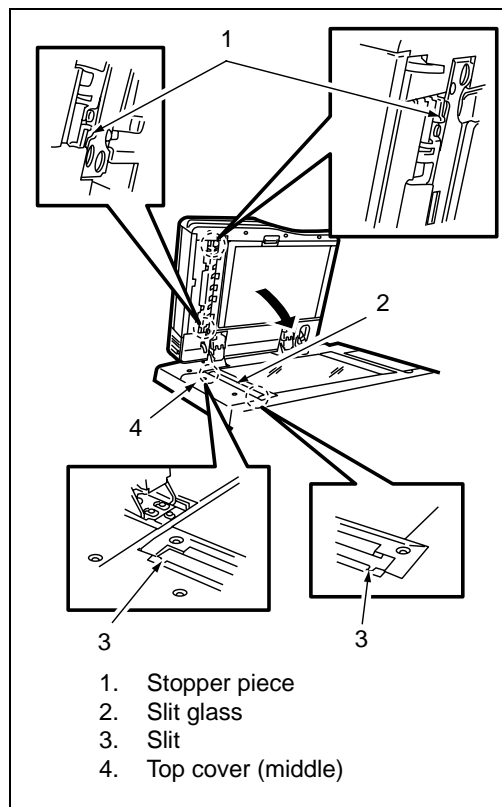
- (3) Following the removal procedure in reverse, install the cable conduit, two relay connectors (CN31, CN32), ground cable, and top cover (rear) of the main unit.
 (4) Install two RADF positioning jigs in the mounting holes of the original stopper plate (left).

- (5) Close the RADF to mate the reference holes and RADF positioning jigs.

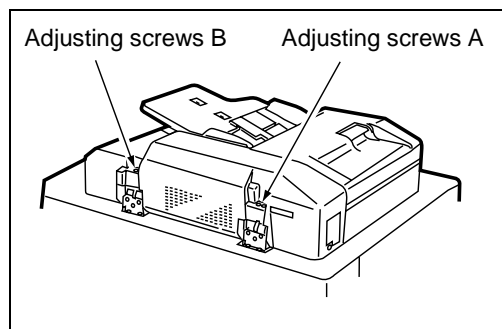


- (6) Install two screws to secure each of the two fixing plates (R) following the removal procedure in reverse.
(7) Open the RADF, install the other screw for each of the two fixing plates (F), and finally tighten all the four screws to secure the two fixing plates (F).
(8) Remove the RADF positioning jigs and install the original stopper plate (left) with two screws.
(9) Close the RADF and check whether both stopper pieces on the RADF-side touch the slit glass.

Note: The state of contact between the stopper pieces and the slit glass can be checked by looking into the slits in the top cover of the main unit.



- (10) If both stopper pieces do not touch the slit glass at the same time, make adjustments using adjusting screws A and B alternately.



- (11) Perform steps (9) and (10) repeatedly until the two stopper pieces touch the slit glass at the same time.
(12) Install the rear cover of the main unit.

ORIGINAL FEED/CONVEYANCE/EXIT SECTION



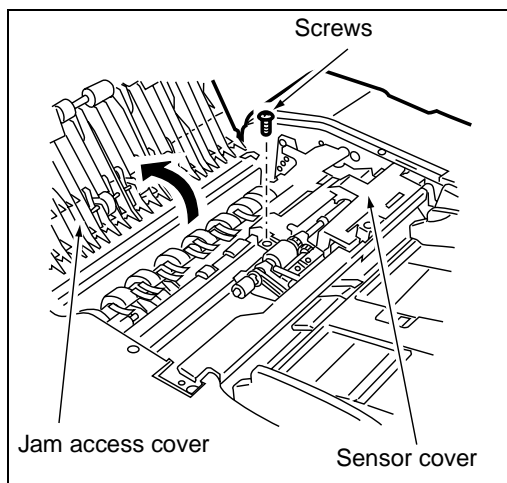
Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Replacing the Pickup Roller and Conveyance Roller Rubber

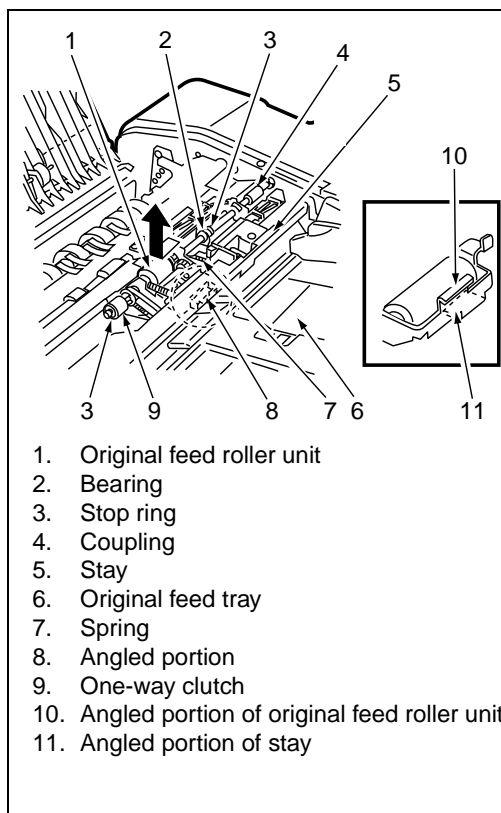
a. Procedure

- (1) Open the Jam access cover.
- (2) Remove the screw to detach the sensor cover.



- (3) Remove the spring.
- (4) Remove the two stop rings to slide the bearing and one-way clutch outward.
- (5) Slide the original feed roller unit to the front to release it from the coupling, then remove it upward.

- (6) Remove the original feed roller rubber from the original feed roller.



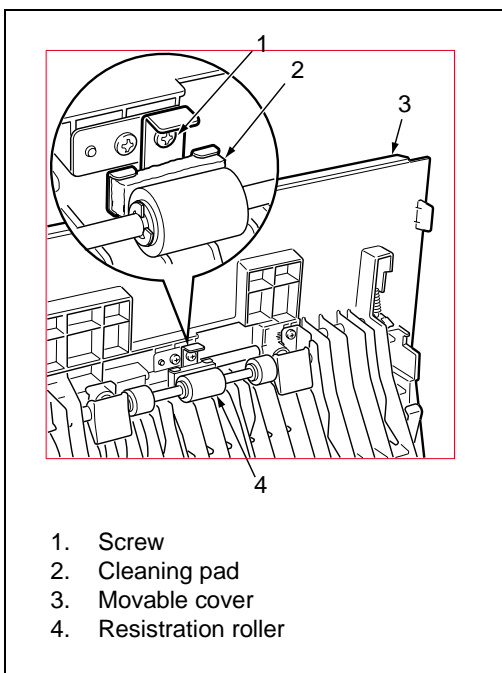
- (7) Clean rollers using a blower brush or the like.
- (8) Reinstall the original feed roller unit in the reverse order of the removal procedure.

Note: Caution: Make sure the angled portion of the original feed roller unit is positioned above the angled portion of the stay. If the angled portion of the original feed roller unit is positioned below the angled portion of the stay, originals are not fed properly.

[2] Cleaning the Cleaning Pad

a. Procedure

- (1) Open the movable cover.
- (2) Remove one screw to detach the cleaning pad.
- (3) Using a blower brush, clean the cleaning pad.



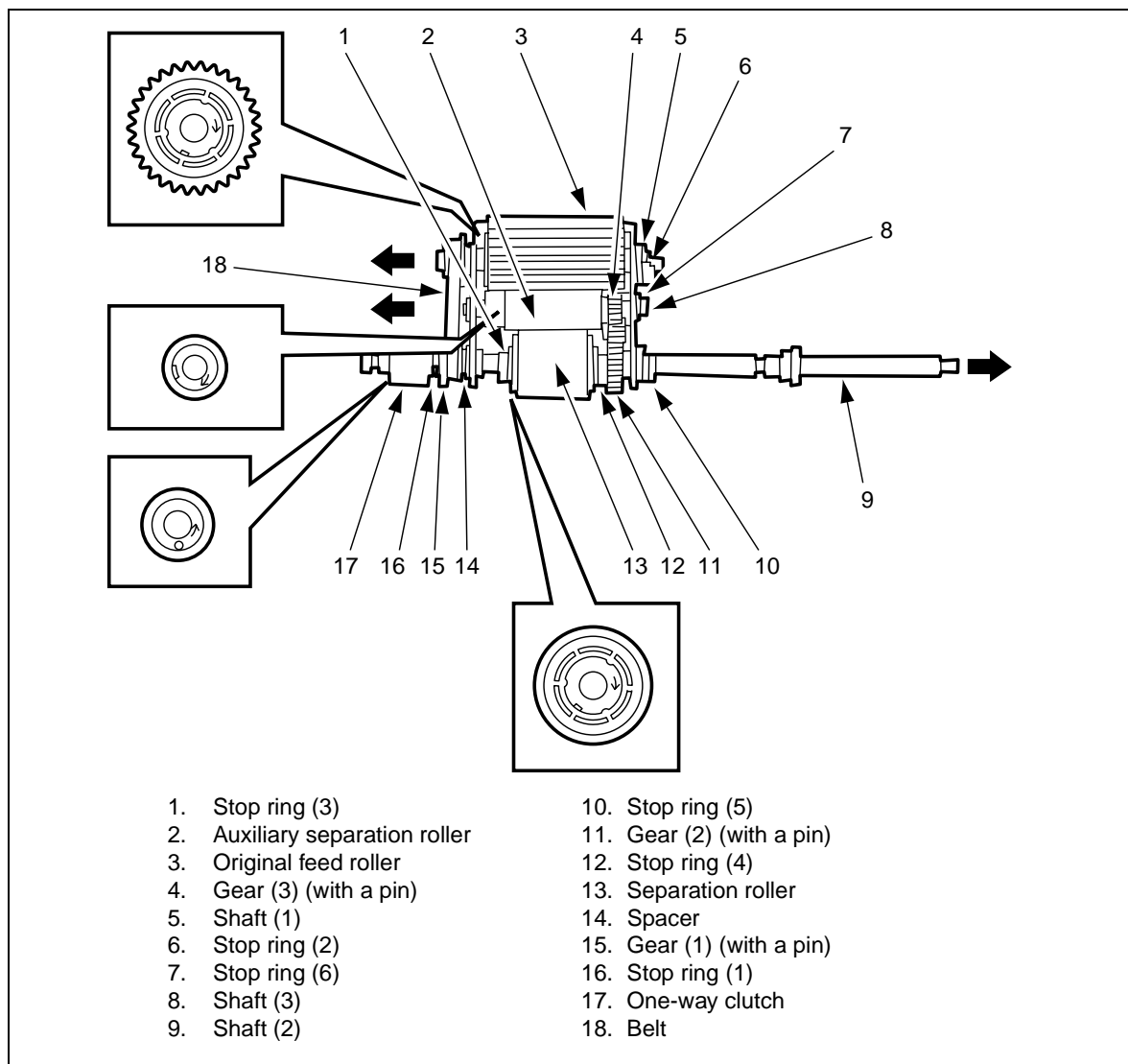
- (4) Reinstall the above parts following the removal steps in reverse.

[3] Replacing the Original Feed Roller/ Separation Roller/Auxiliary Separation Roller

a. Procedure

- (1) Remove the original feed roller unit.
- (2) Remove the one-way clutch.
- (3) Remove stop ring (1) to detach gear (1) and belt.
- (4) Remove stop ring (2) and pull out shaft (1) to detach the original feed roller.
- (5) Pull the pin for gear (1) and the spacer from shaft (2).
- (6) Remove stop rings (3), (4), and (5) to pull the pin for gear (2) from shaft (2).
- (7) Pull out shaft (2) to detach the separation roller.
- (8) Remove stop ring (6) to pull the pin for gear (3) from shaft (3).

- (9) Pull out shaft (3) to detach the auxiliary separation roller.



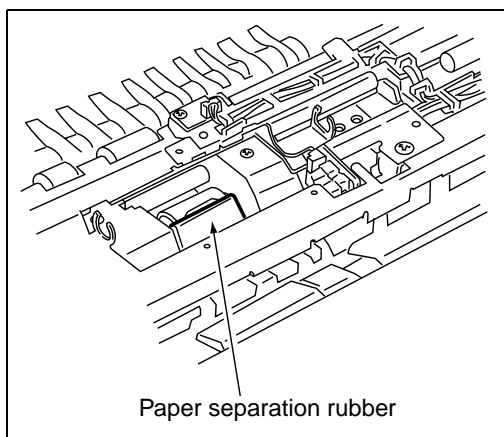
- (10) Reinstall the original feed roller/separation roller/auxiliary separation roller in the reverse order of the removal procedure.

Caution: Make sure the one-way clutch and rollers are oriented properly when reinstalling them.

[4] Cleaning the Paper Separation Rubber

a. Procedure

- (1) Remove the original feed roller unit.
- (2) Clean the paper separation rubber using a drum cleaner and cleaning pad.

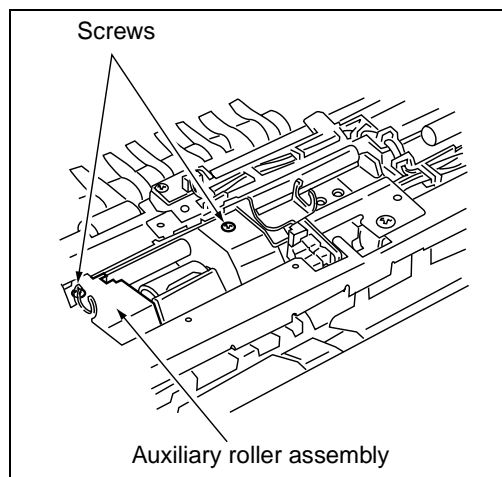


- (3) Reinstall the cleaning roller in the reverse order of the removal procedure.

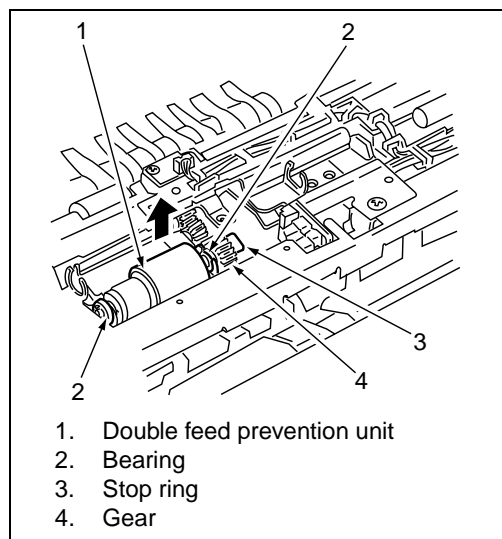
[5] Replacing the Double Feed Prevention Roller/Torque Limiter

a. Procedure

- (1) Remove the original feed roller unit.
- (2) Remove the two screws to detach the auxiliary roller assembly.

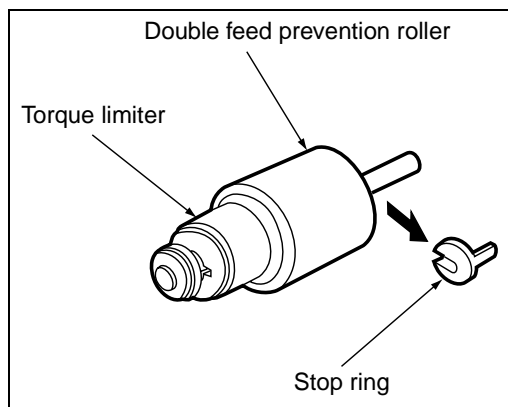


- (3) Remove the stop ring to detach the gear.
- (4) Slide the two bearings outward to detach the double feed prevention roller unit.



- (5) Remove the stop ring to detach the double feed prevention roller and torque limiter.
- (6) Reinstall the double feed prevention roller and torque limiter in the reverse order of the removal procedure.

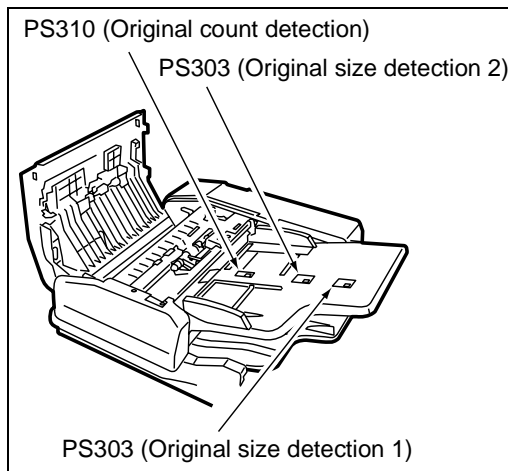
Note: Make sure the double feed prevention roller is oriented properly when reinstalling it.



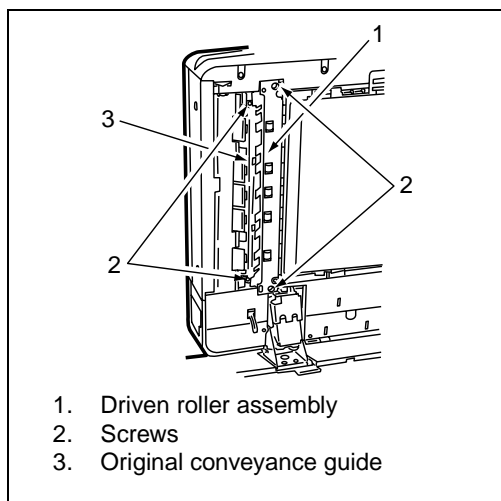
[6] Cleaning Photo Sensors/Mirrors for Photo Sensors

a. Procedure

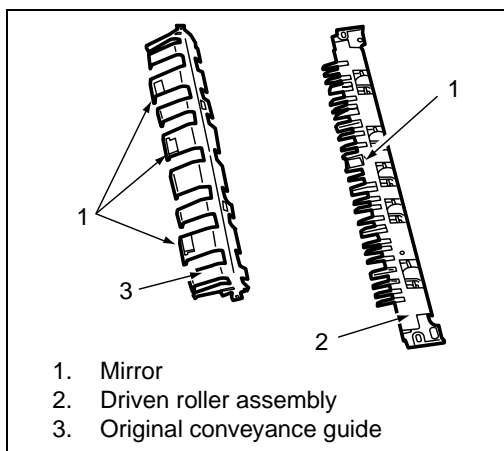
- (1) Close the RADF.
- (2) Clean sensors using a blower brush or the like.



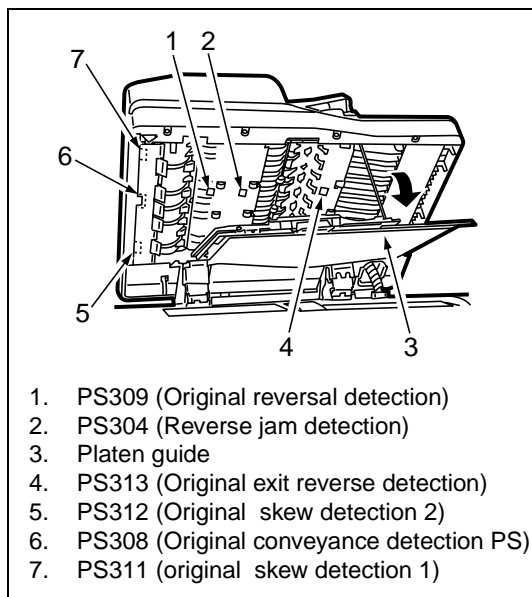
- (3) Open the RADF.
- (4) Remove the two screws to detach the driven roller assembly.
- (5) Remove the two screws to detach the original conveyance guide.



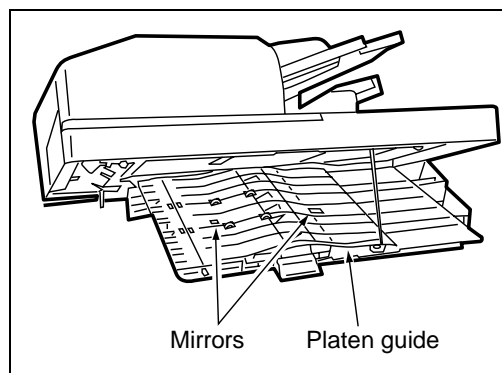
- (6) Using a blower brush or the like, clean the mirror on the driven roller assembly and the three mirrors on the original conveyance guide.



- (7) Open the platen guide.
(8) Clean sensors using a blower brush or the like.



- (9) Clean the two mirrors on the back of the platen guide using a blower brush or the like.



- (10) Reinstall the photo sensors/mirrors for photo sensors in the reverse order of the removal procedure.

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PAPER FEED SECTION



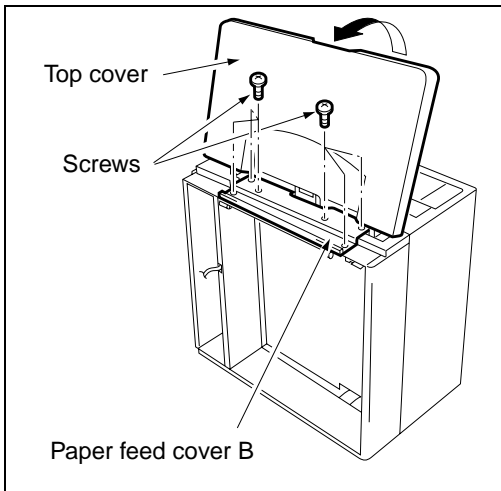
Caution:

If LCT is connected to the main body, make sure that main body power plug is disconnected from the power outlet.

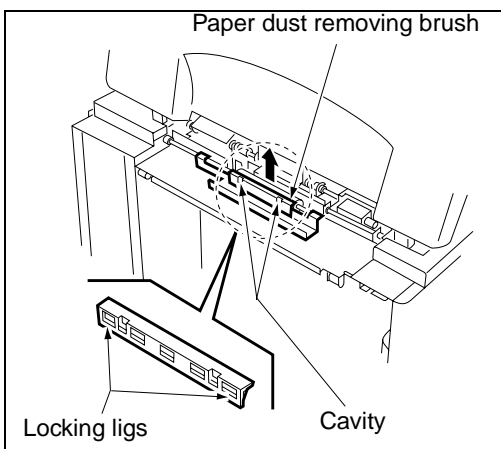
[1] Cleaning the Paper Dust Removing Brush

a. Procedure

- (1) Open the top cover.
- (2) Remove six screws to detach the paper feed cover B.



- (3) Insert a flat bladed screwdriver in the cavities (in two locations) for paper dust removing brush to release the locking lugs, then remove the paper dust removing brush.

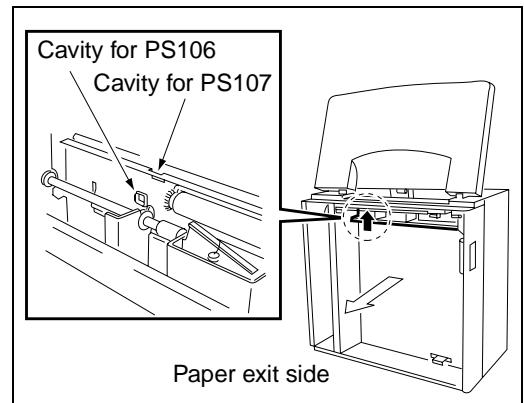


- (4) Clean the paper dust removing brush using a blower brush.
- (5) Reinstall the above parts following the removal steps in reverse.

[2] Cleaning the LT feed PS (PS106)/LT first paper feed PS (PS107)

a. Procedure

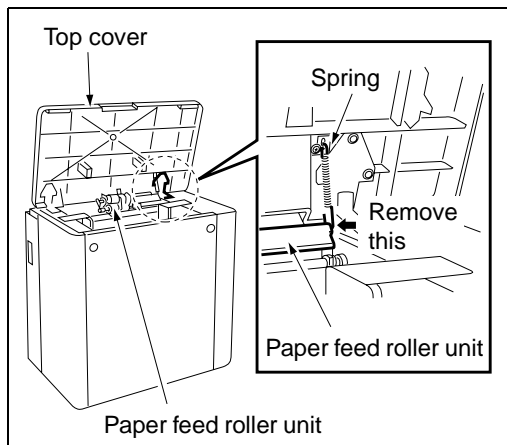
- (1) Looking into the paper exit side of the LCT from below, and clean sensors through the cavity for LT feed PS (PS106) and the cavity for LT first paper feed (PS107) using a blower brush.



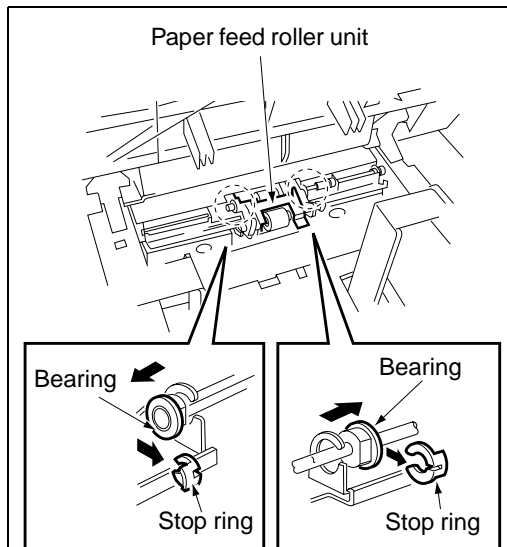
[3] Removing and Reinstalling the Paper Feed Roller Unit

a. Procedure

- (1) Open the top cover.
- (2) Remove the spring from the paper feed roller unit.



- (3) After removing two stop rings, remove the two bearings outward to remove the paper feed roller unit.

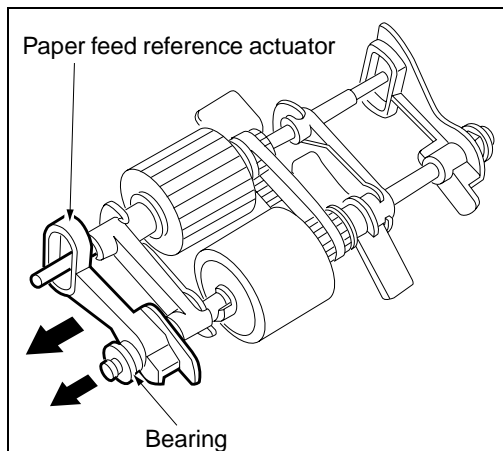


- (4) Reinstall the above parts following the removal steps in reverse.

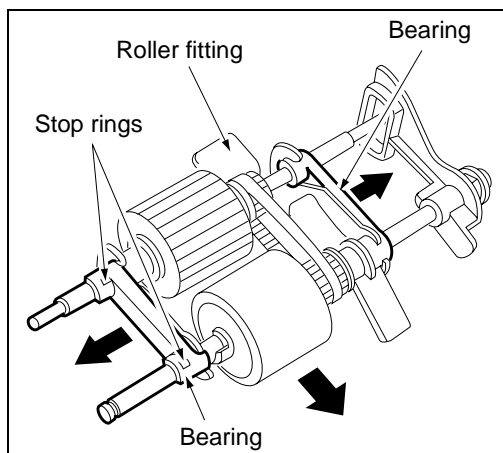
[4] Replacing the Paper Feed Roller Rubber/Feed Roller Rubber

a. Procedure

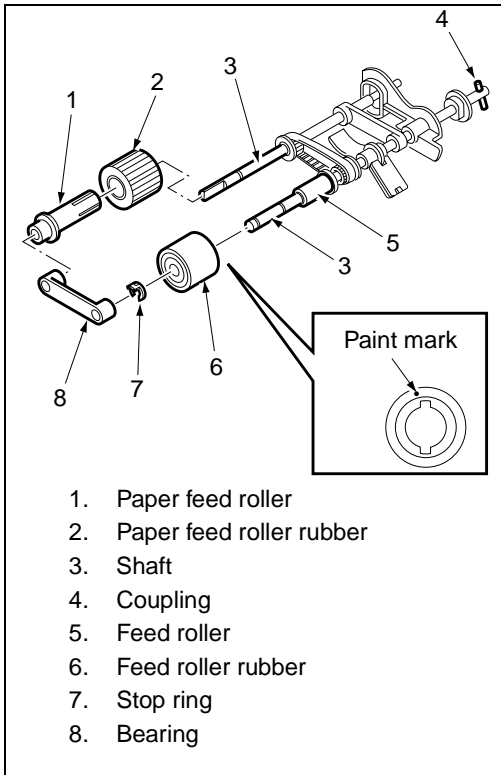
- (1) Remove the paper feed roller unit.
- (2) Remove the bearing and paper feed reference actuator.



- (3) Remove two stop rings.
- (4) Remove two bearings outward to detach the roller section from the roller fitting.



- (5) Remove the bearing from the opposite side of the coupling, then remove the paper feed roller from the shaft.
- (6) Remove the stop ring to pull the feed roller from the shaft.
- (7) Remove the rubber from each roller.



- (8) Reinstall the above parts following the removal steps in reverse.

Caution1: Make sure rollers and rubber portions are oriented properly when reinstalling them.

Caution2: Make sure the one-way clutch direction is correct.

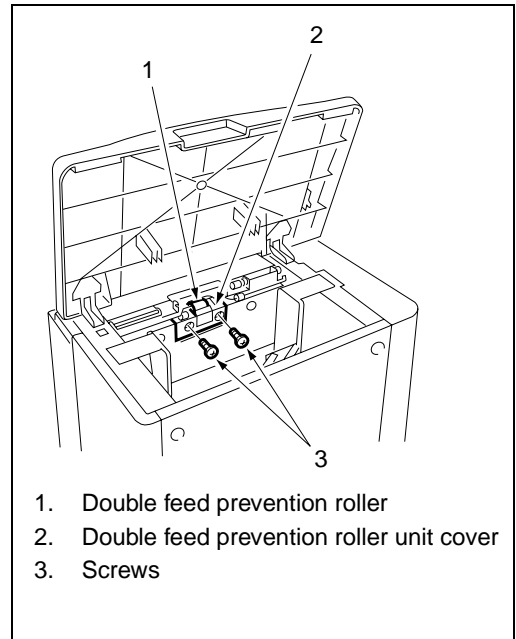
Caution3: Check whether grease or the like is present on each roller.

[5] Replacing the Double Feed Prevention Roller Rubber

a. Procedure

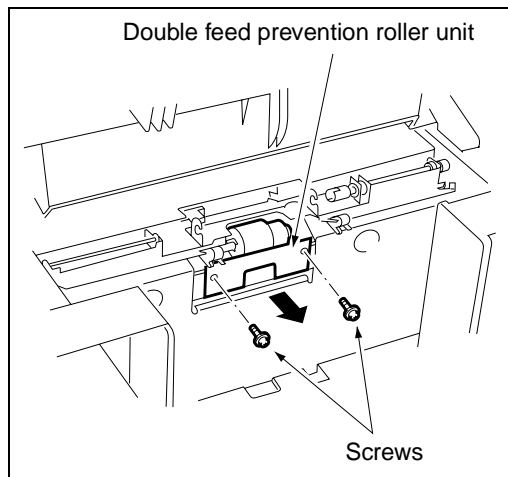
Caution: With the power held on, press the LT tray down switch (SW100) to move the up/down plate down to the bottom in advance.

- (1) Remove the paper feed roller unit.
- (2) Remove two screws to detach the double feed prevention roller unit cover.

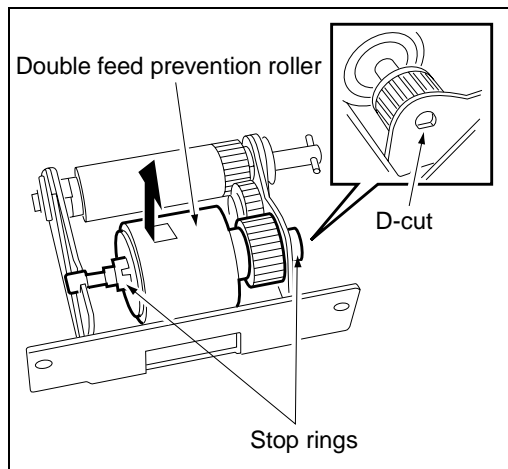


- (3) Remove two screws to detach the double feed prevention roller unit.

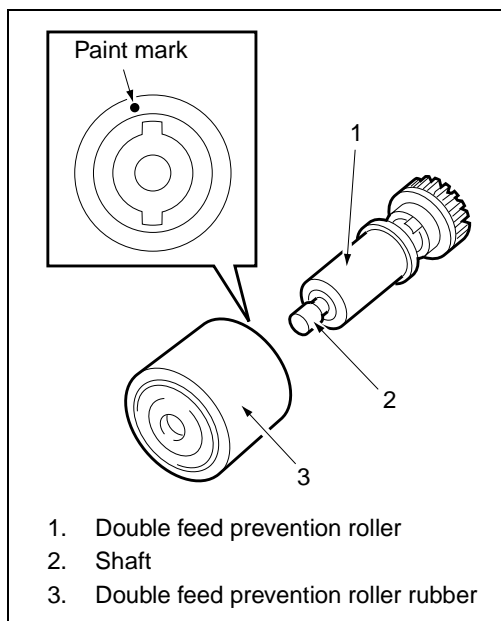
Caution: When reinstalling the double feed prevention roller unit, tighten the screws on the rear side first.



- (4) Remove two stop rings, fit the shaft into the D-cut in the fitting, and remove the double feed prevention roller together with the shaft.



- (5) Remove the double feed prevention roller rubber from the double feed prevention roller.



- (6) Reinstall the double feed prevention roller in the reverse order of the removal procedure.

Caution1: Make sure the double feed prevention roller rubber is oriented properly when reinstalling it.

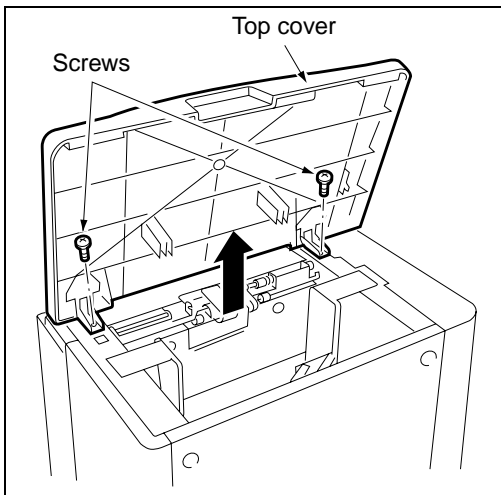
Caution2: Check whether scratch or the like is visible on the pet cover for the drive gear.

Caution3: Check whether grease or the like is present on double feed prevention roller.

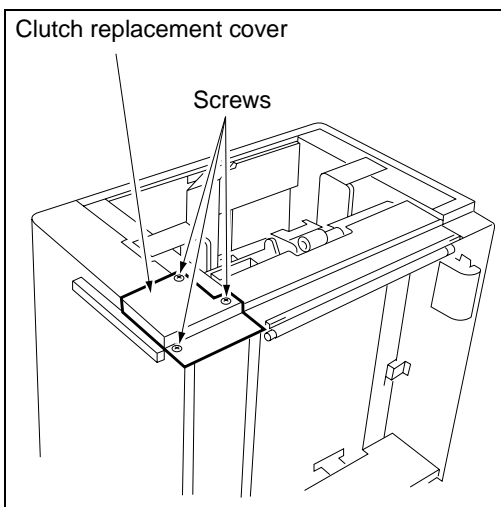
[6] Replacing the LT feed MC (MC101)/LT first paper feed MC (MC102)

a. Procedure

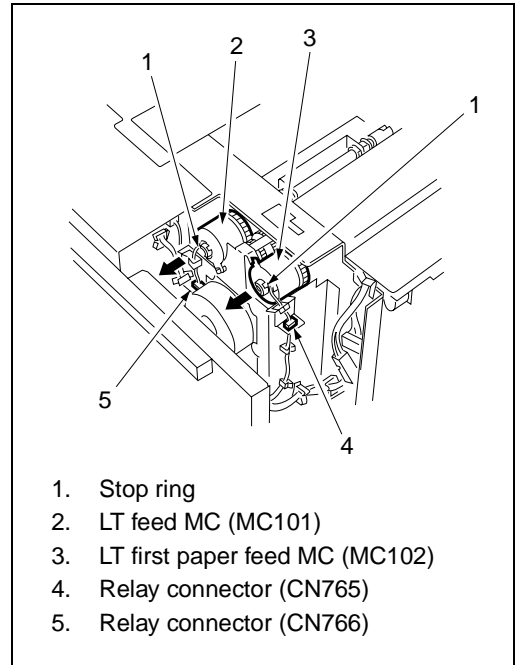
- (1) Open the top cover.
- (2) Remove the spring from the paper feed roller unit.
- (3) Remove two screws to detach the top cover.



- (4) Remove three screws to detach the clutch replacement cover.



- (5) Disconnect two relay connectors (CN765, CN766) of the clutches.
- (6) Remove the stop ring to detach each clutch.



- (7) Reinstall the above parts following the removal steps in reverse.

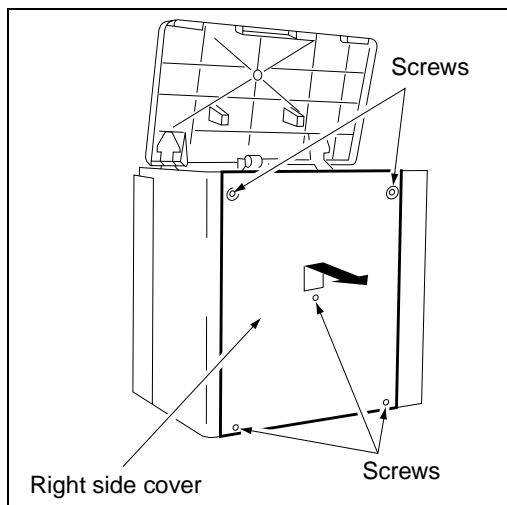
Caution: When installing each MC, make sure that the stopper of each clutch is on the predefined position.

[7] Replacing the C-403 Up/Down Wires

Caution: With the power held on, press the LT tray down switch (SW100) to move the up/down plate down to the bottom in advance.

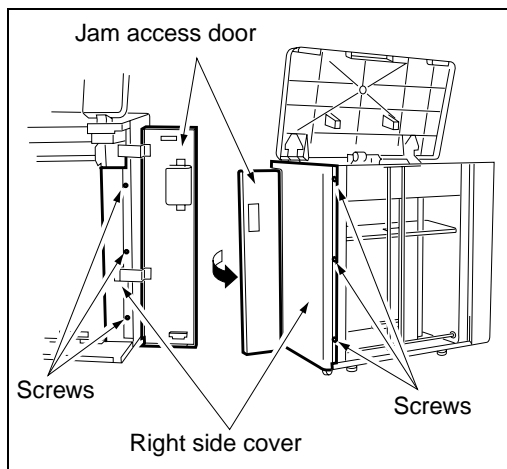
a. Procedure

- (1) Open the top cover.
- (2) Remove the clutch replacement cover.
- (3) Remove five screws to detach the right side cover.

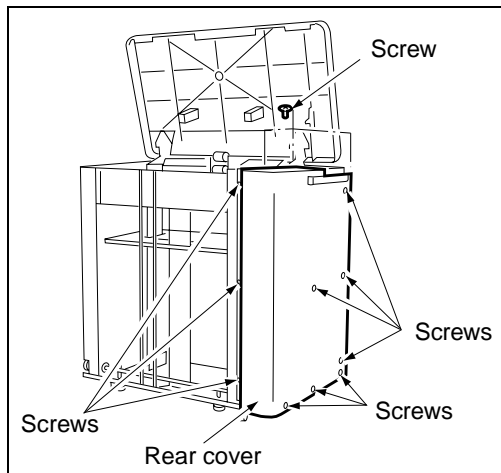


- (4) After opening the jam access door, remove six screws to detach the front cover.

Caution: When removing the front cover, close the jam access door after removing the screws.

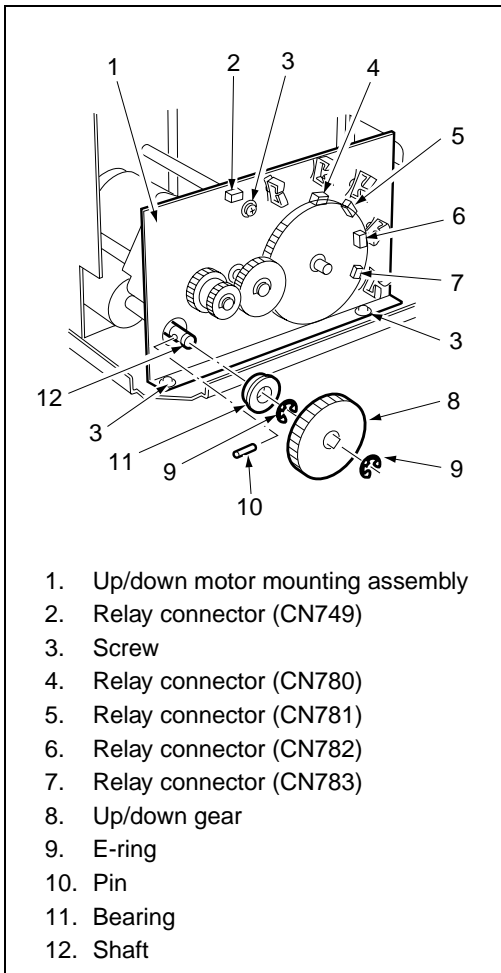


- (5) Remove twelve screws to detach the rear cover.



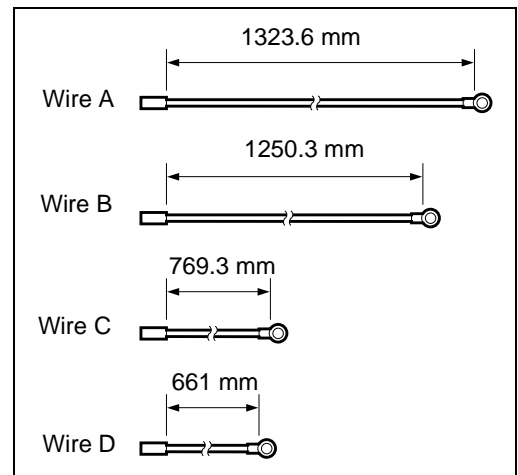
- (6) Remove the five relay connectors (CN749, CN780, CN781, CN782, CN783) to disconnect the wiring harness from the up/down motor mounting assembly.
- (7) Remove the E-ring to detach the up/down gear.
- (8) Pull the pin from the shaft.
- (9) Remove the E-ring to detach the bearing.

- (10) Remove three screws to detach the up/down motor assembly.

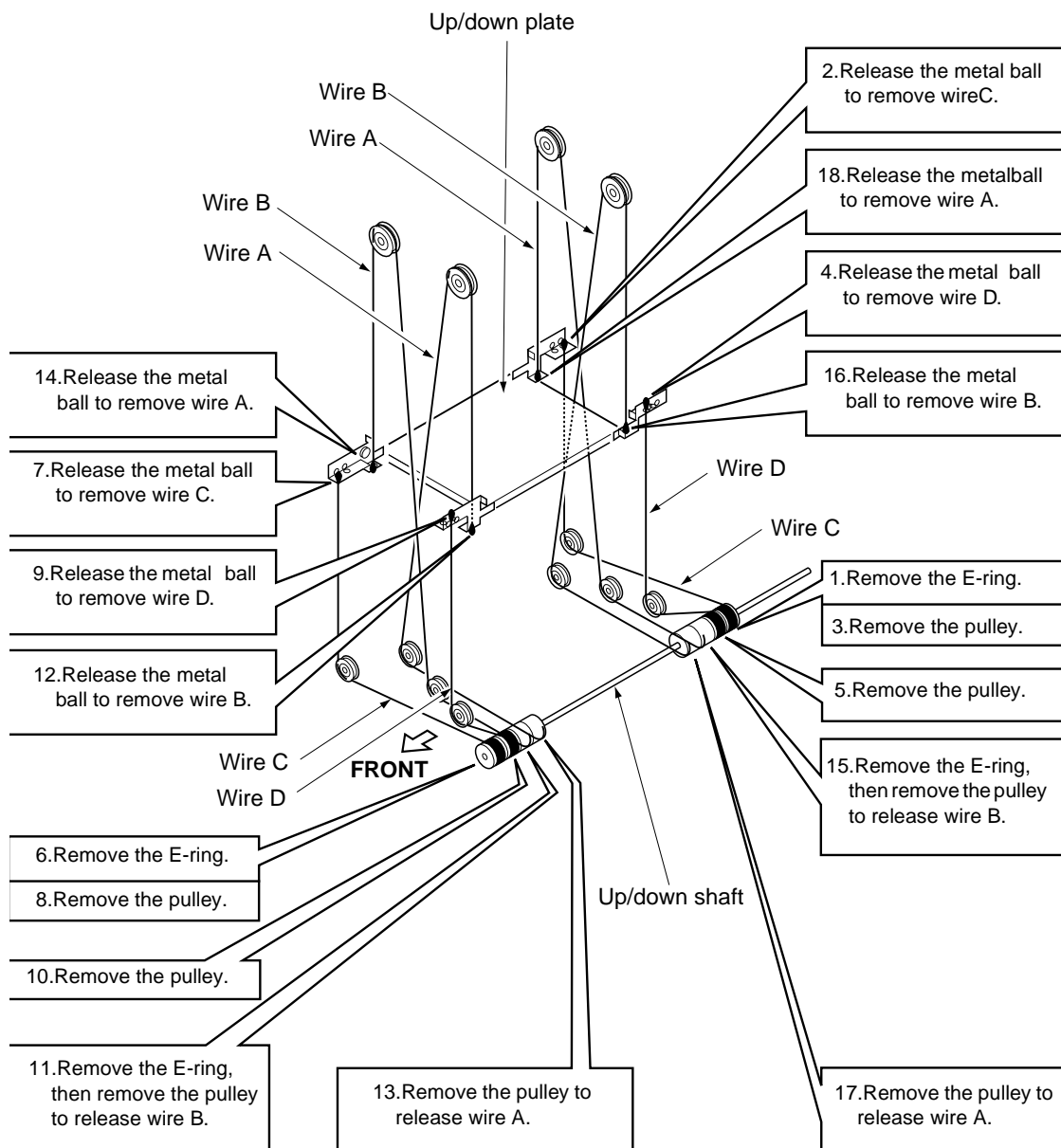


- (11) Replace the up/down wire following the instructions in "Removing Up/Down Wires" and "Installing Up/Down Wires."

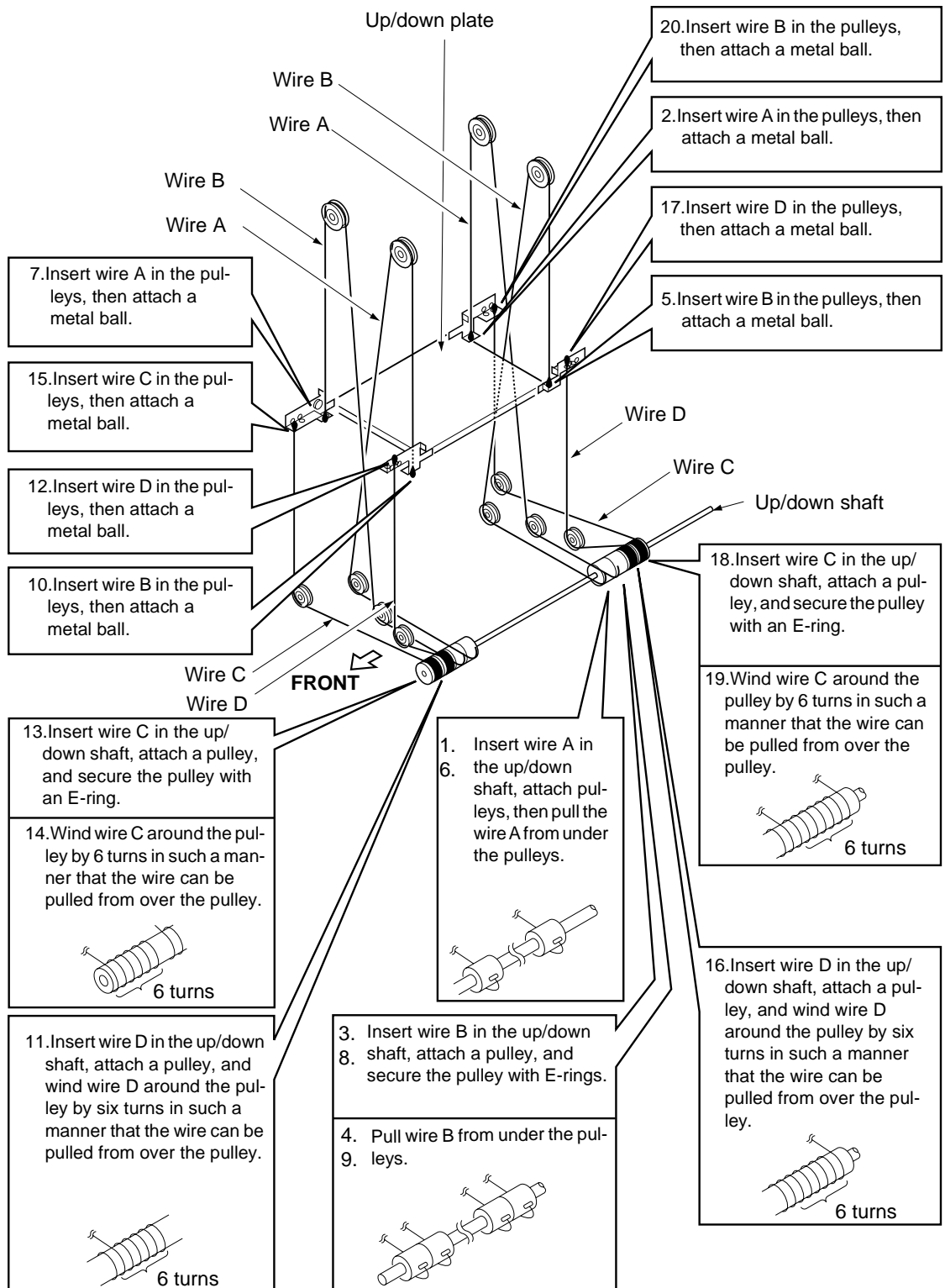
Caution: Two sets of four up/down wires with different length, one set at the front and the other at the back, are used. Wires with the same length can be used either at the front or back if they are used in the same location.



<Removing the Up/Down Wires>



<Installing the Up/Down Wires>

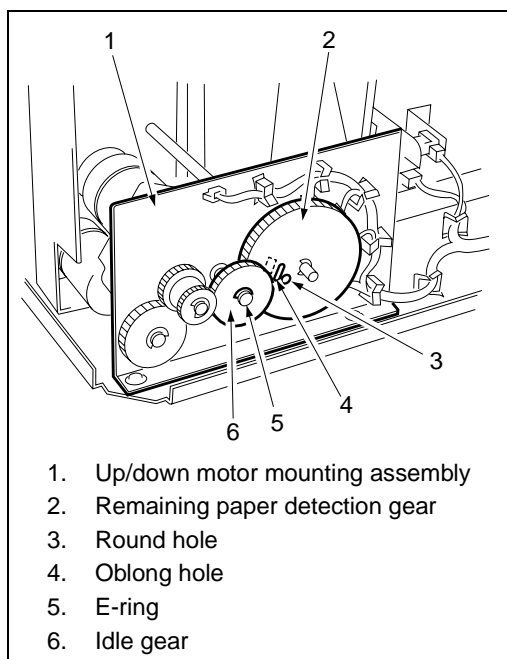


- (12) After installing the up/down wires, make sure the up/down wires are passed in the grooves in the pulleys properly and wires do not run on the sides of the pulleys. Also make sure the up/down plate can be moved up and down smoothly by hand.

Caution: If the up/down plate does not move up and down smoothly, reinstall the up/down wires.

- (13) Install the up/down wire drive motor assembly, up/down gear, and relay connectors, following the removal steps in reverse.
- (14) Remove the E-ring to detach the idle gear.
- (15) Rotate the remaining paper detection gear until the round hole in this gear is aligned with the oblong hole in the up/down motor mounting assembly.

Caution: Align when the up/down plate is in lowest position.



- (16) Install the idle gear.
- (17) Attach the covers following the removal steps in reverse.

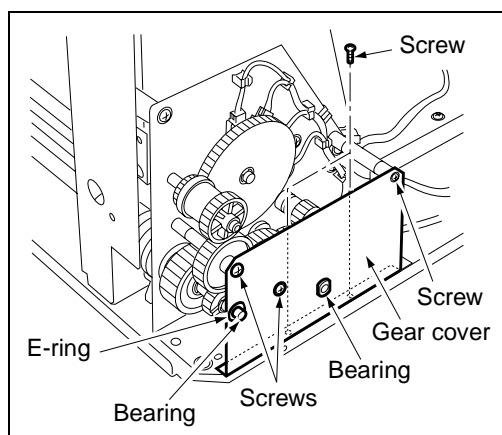
Caution1: After replacing the up/down wires, make horizontal and centering adjustment of the up/down plate. (Refer to "ADJUSTMENT SECTION.")

[8] Replacing the C-404 Up/Down Wires

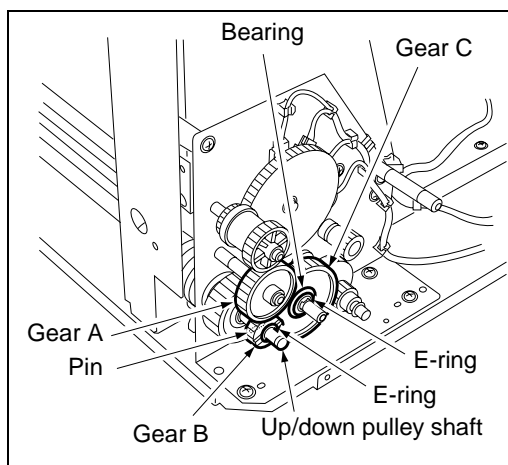
a. Procedure

Caution: With the power held on, press the LT tray down switch (SW100) to move the up/down plate down to the bottom in advance.

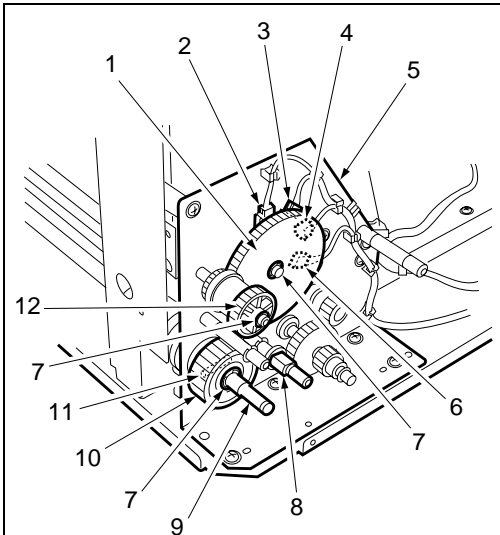
- (1) Remove the clutch replacement cover, side cover (right), front cover, and rear cover following the steps (1) to (5) in [7] Replacing the A4LCT Up/Down Wires.
- (2) Remove the E-ring.
- (3) Remove the five screws to detach the gear cover.
- (4) Remove the two bearings.



- (5) Remove the gear A.
- (6) Remove the E-ring to remove gear B.
- (7) Remove the detent pin for gear B from the up/down pulley shaft.
- (8) Remove the E-ring and bearing to remove gear C.

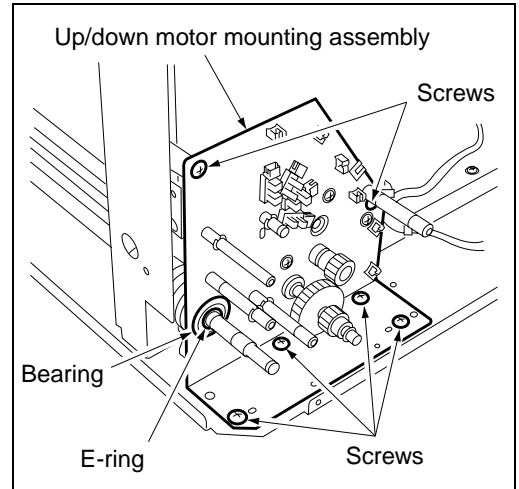


- (9) Remove the bearing behind gear C.
- (10) Remove the E-ring to remove the up/down gear.
- (11) Remove the detent pin for up/down gear from the up/down pulley shaft.
- (12) Remove the E-ring to remove gear D.
- (13) Remove the E-ring to remove the remaining paper detection gear.
- (14) Remove four relay connectors (CN780, CN781, CN782, and CN783) to disconnect the wiring harness from the up/down motor mounting assembly.



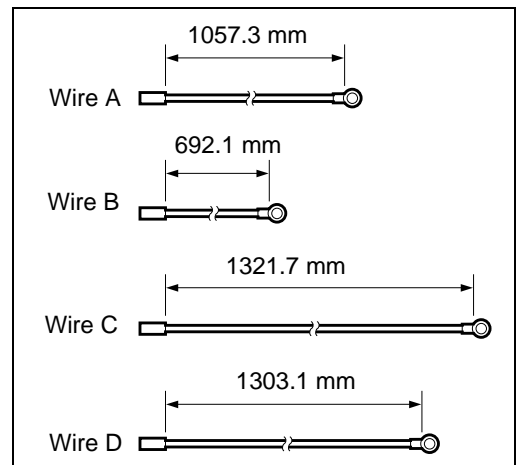
1. Remaining paper detection gear
2. Relay connector (CN780)
3. Relay connector (CN781)
4. Relay connector (CN782)
5. Up/down motor mounting assembly
6. Relay connector (CN783)
7. E-ring
8. Bearing
9. Up/down pulley shaft
10. Up/down gear
11. Pin
12. Gear D

- (15) Remove the E-ring to remove the bearing.
- (16) Remove the six screws to remove the up/down motor mounting assembly.

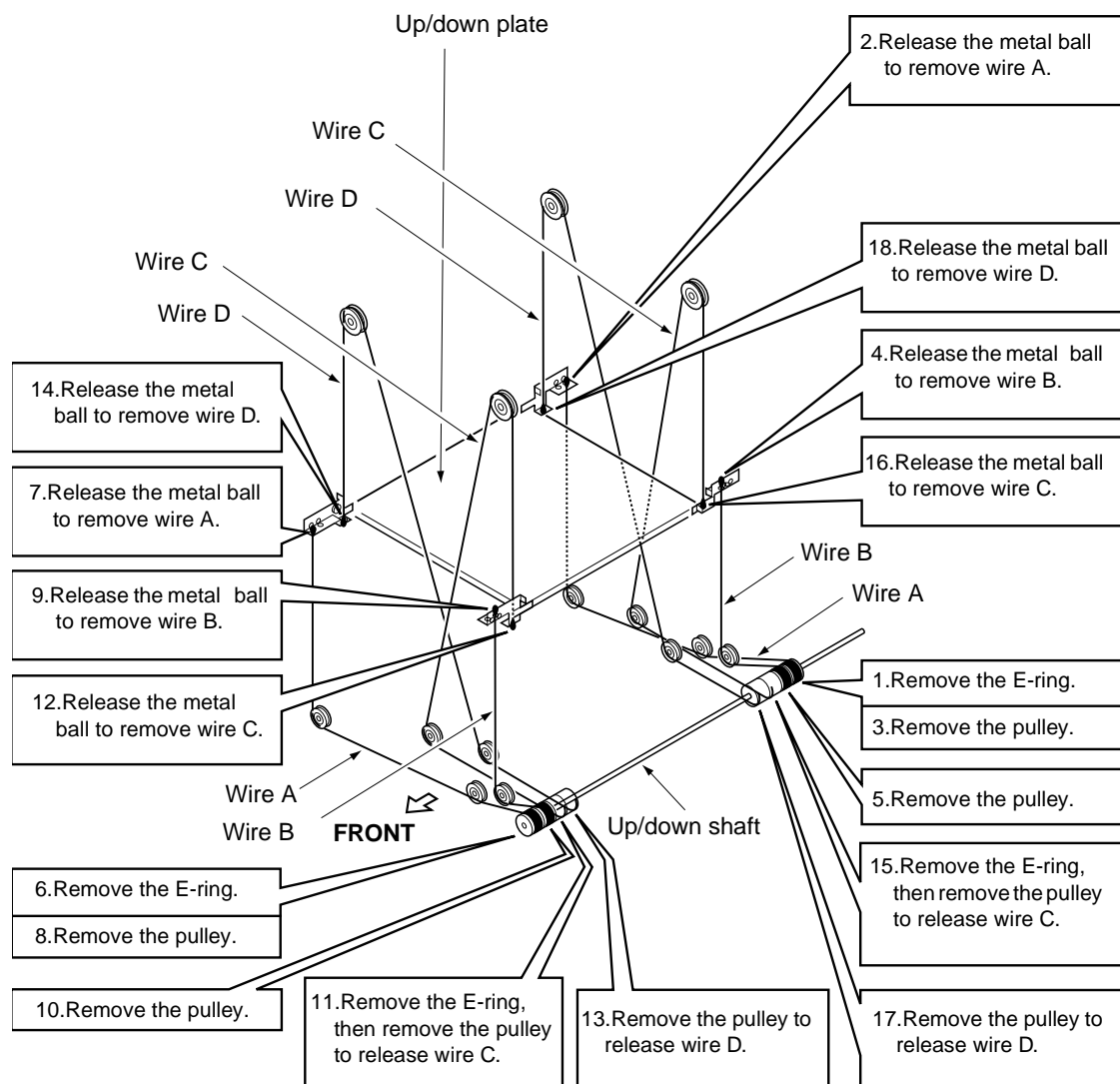


- (17) Replace the up/down wires following the instructions in "Removing the Up/Down Wires" and "Installing Up/Down Wires."

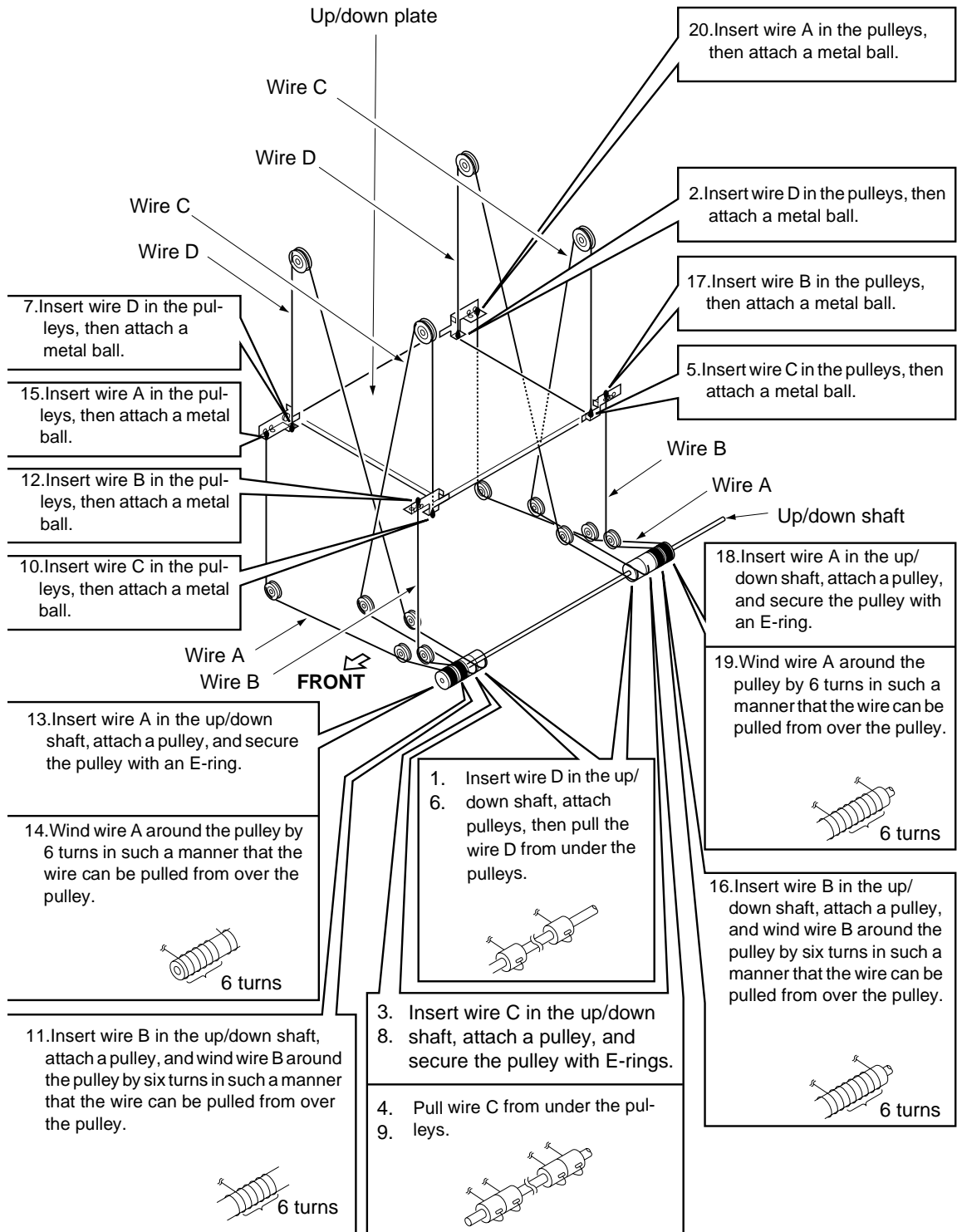
Caution: Two sets of four up/down wires with different length, one set at the front and the other at the back, are used. Wires with the same length can be used either at the front or back if they are used in the same location.



<Removing the Up/Down Wires>



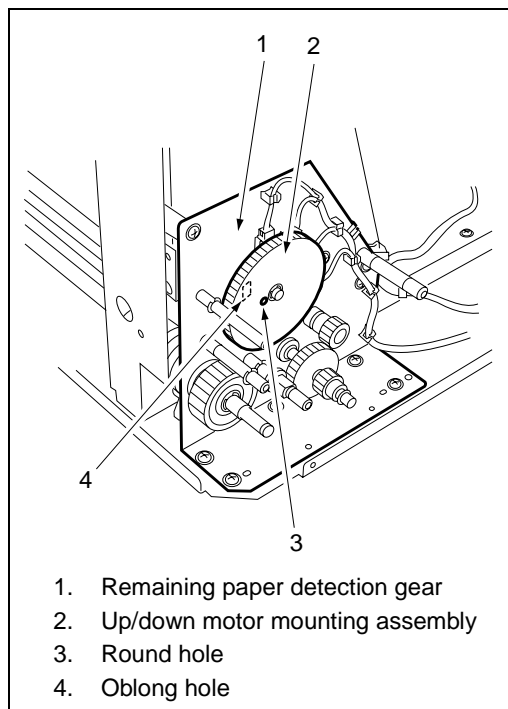
<Installing the Up/Down Wires>



- (18) After installing the up/down wires, check whether they are engaged with the pulleys properly and whether they do not ride over the pulleys. Next, move the up/down plate manually to check whether it moves up and down smoothly.

Caution: If the up/down plate does not move smoothly, remove the up/down wires and install them again.

- (19) Install the up/down motor mounting assembly, relay connectors, remaining paper detection gear, gear D, and up/down gear following the removal steps in reverse.
- (20) Rotate the remaining paper detection gear until the round hole in this gear is aligned with the oblong hole in the up/down motor mounting assembly.



Caution: Align them when the up/down plate is at the bottom.

- (21) Install gear C.
- (22) Attach the other gears, gear cover, and external covers following the removal steps in reverse.

Caution: After replacing the up/down wires, make horizontal and centering adjustment of the up/down plate. (Refer to "ADJUSTMENT SECTION.")

EXTERNAL SECTION

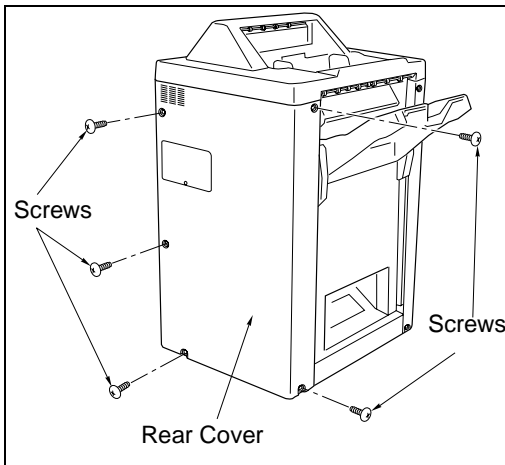
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Removing and Reinstalling the Rear Cover

a. Procedure

- (1) Remove the five set screws holding the rear cover in place, and take off the cover.

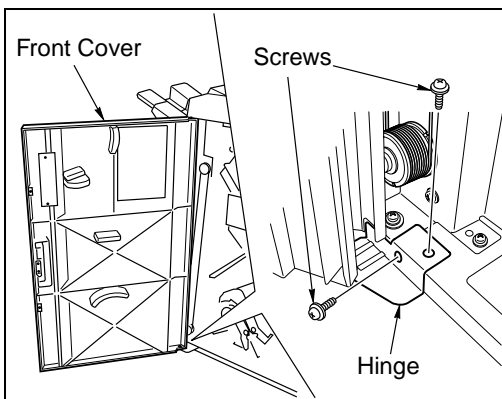


- (2) Reinstall the rear cover in the opposite sequence to removal.

[2] Removing and Reinstalling the Front Cover

a. Procedure

- (1) Open the front cover.
- (2) Remove the two set screws holding the bottom hinge in place, and take off the front cover.

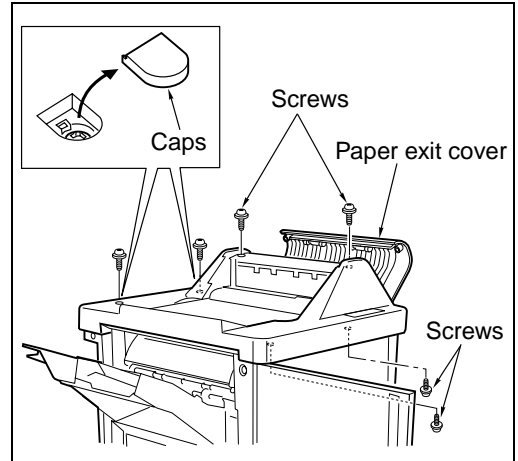


- (3) Reinstall the front cover in the opposite sequence to removal.

[3] Removing and Reinstalling the Top Cover

a. Procedure

- (1) Remove the sub-tray.
- (2) Open the paper exit cover.
- (3) Remove the two caps.
- (4) Open the front cover.
- (5) Remove the six set screws holding the top cover in place, and take off the cover.

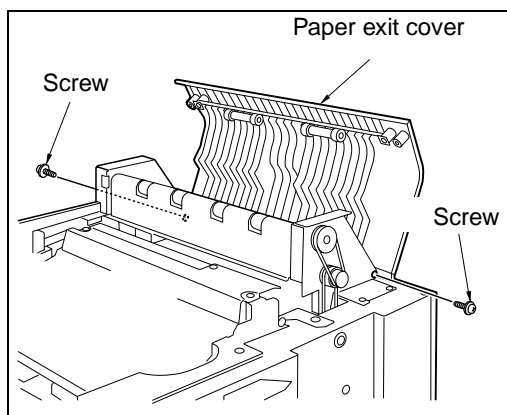


- (6) Reinstall the top cover in the opposite sequence to removal.

[4] Removing and Reinstalling the Paper Exit Cover

a. Procedure

- (1) Remove the top cover.
- (2) Remove the two set screws holding the paper exit cover in place, and take off the paper exit cover.



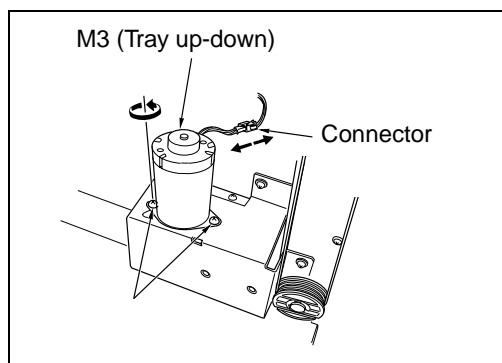
- (3) Reinstall the paper exit cover in the opposite sequence to removal.

[5] Removing and Reinstalling the Main Tray

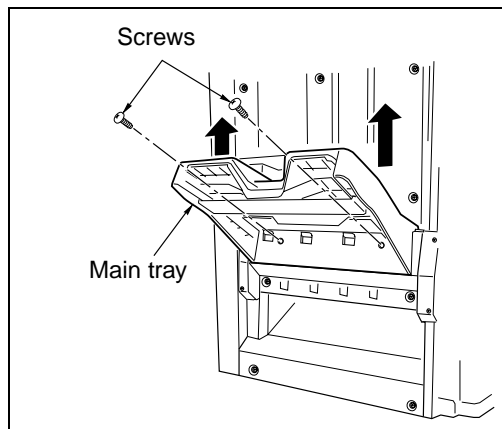
a. Procedure

- (1) Remove the rear cover.
- (2) Detach the connector and remove the two set screws holding motor M3 (tray up-down) in place. Remove M3.

Note: Support the main tray with your hand when removing M3.



- (3) Remove the two set screws holding the main tray in place, and lift the main tray up and off.

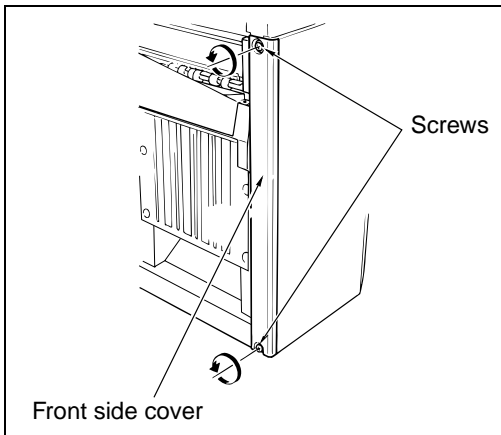


- (4) Reinstall the main tray in the opposite sequence to removal.

[6] Removing and Reattaching the Front Side Cover

a. Procedure

- (1) Remove the two set screws holding the front side cover in place, and take off the front side cover.

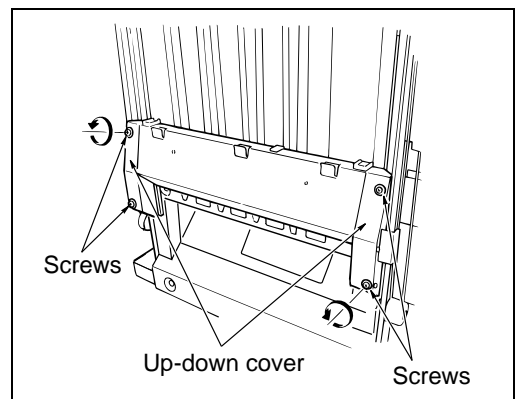


- (2) Reinstall the front side cover in the opposite sequence to removal.

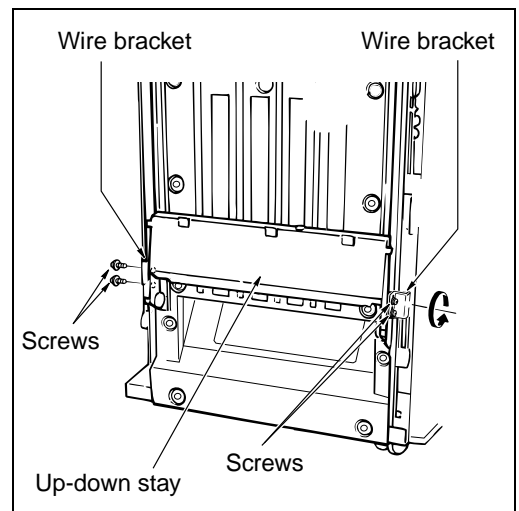
[7] Removing and Reinstalling the Paper Exit Stopper Plate

a. Procedure

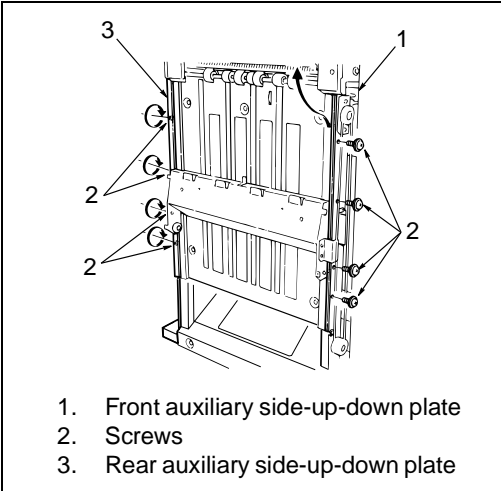
- (1) Remove the following parts.
 - Rear cover
 - Main tray
 - Booklet tray
 - Front cover
 - Front side cover
- (2) Remove the four set screws holding the left and right up-down covers in place, and remove these two covers.



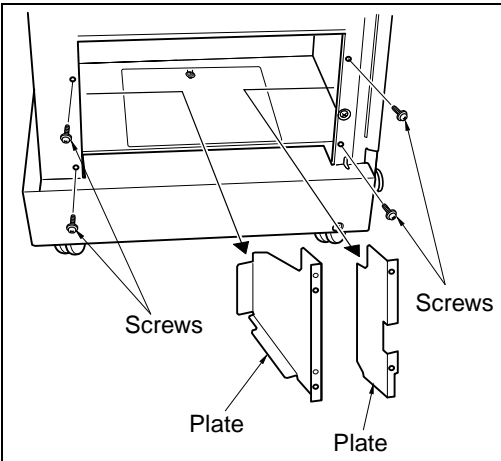
- (3) Remove the two set screws holding the wire bracket in place, and release the lock of the up-down stay.



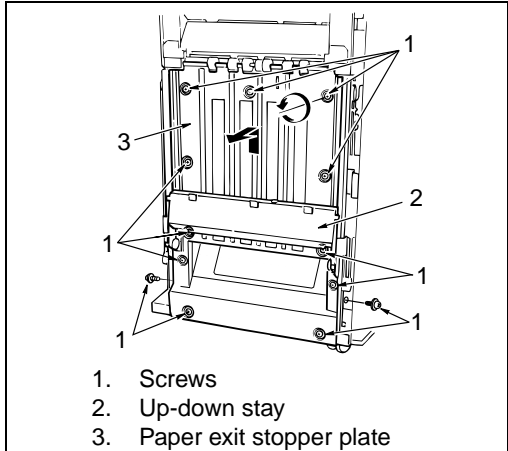
- (4) Remove eight set screws and take off the front and rear auxiliary side-up-down plates.



- (5) Remove four set screws and detach the two plates (front and back plates) at the booklet exit.

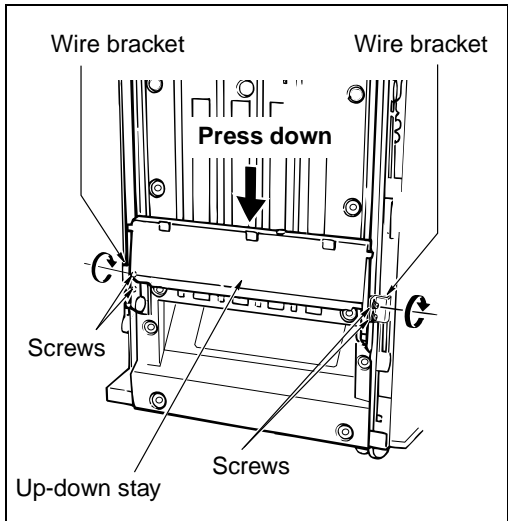


- (6) Remove thirteen more set screws, and take off the paper exit stopper plate.



- (7) Remove the up-down stay. (See "Removing and Reinstalling the Up-Down Stay".)
(8) Reinstall the stopper in the opposite sequence to removal. But note the following caution.

Note: Be sure to press down on the up-down stay while tightening the four screws for the wire brackets.



PAPER FEED UNIT

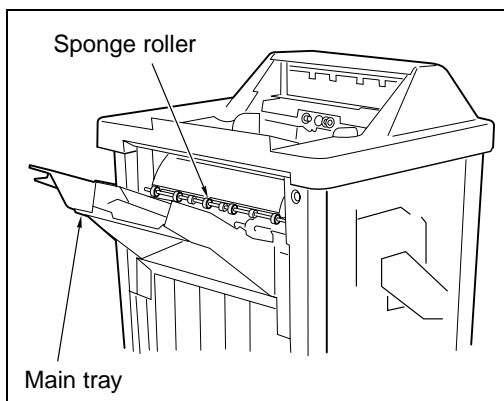
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

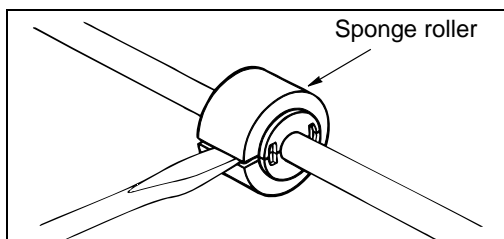
[1] Replacing a Paper Exit Roller (Sponge Roller)

a. Procedure

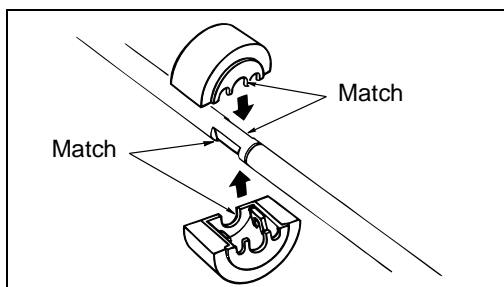
- (1) Run the copier in mode 47 (code 75-06) to lower the main tray.



- (2) Insert the end of a screwdriver into the slot in the sponge roller, and twist the screwdriver to pry the roller off.



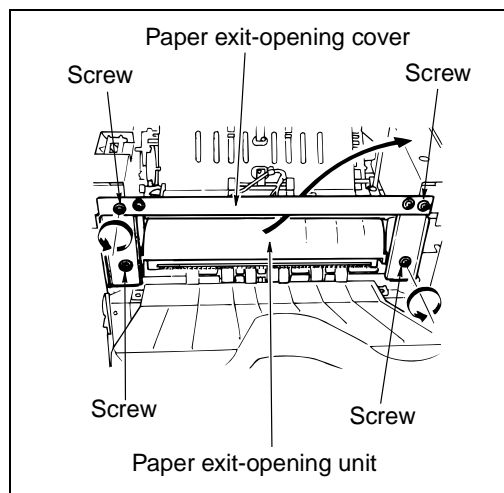
- (3) Take the two halves of the new sponge roller and align their indentations with the indentations on the roller shaft.
- (4) Press the two halves of the roller together until the click into place.



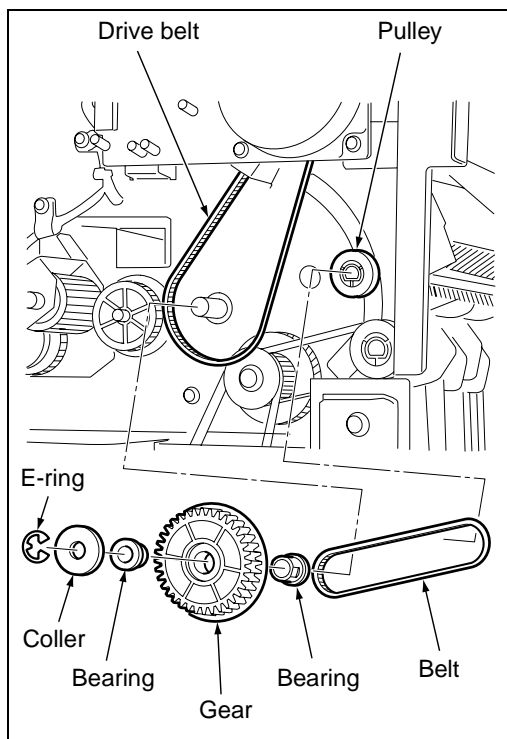
[2] Removing and Reinstalling the Paper Exit Unit/Shift Unit

a. Procedure

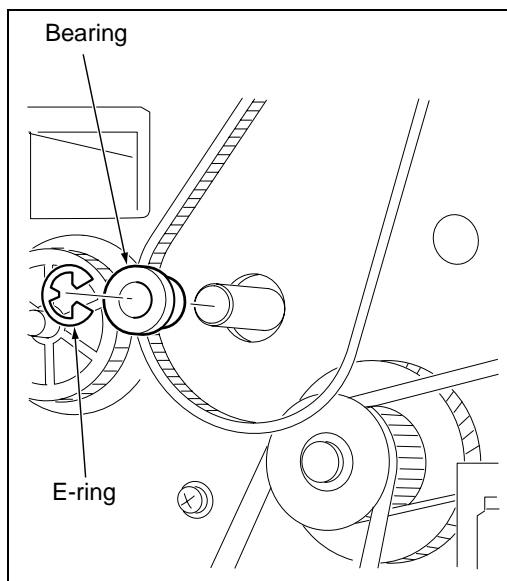
- (1) Remove the following parts:
 - Rear cover
 - Top cover
 - Front side cover
 - CoverInserter C (when installing CoverInserter C)
- (2) Remove the four screws and detach the paper exit cover.



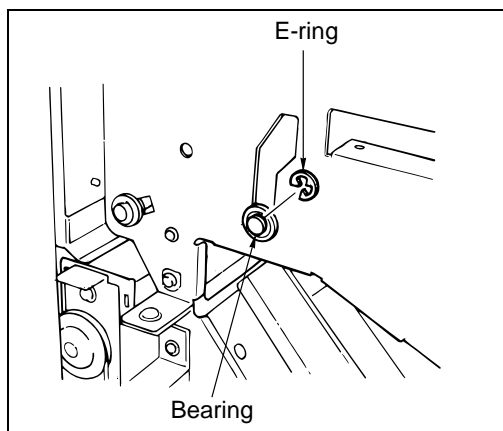
- (3) Remove the pulley and the belt.
- (4) Remove the E-ring, and detach the collar, drive belt, two bearings, and gear.



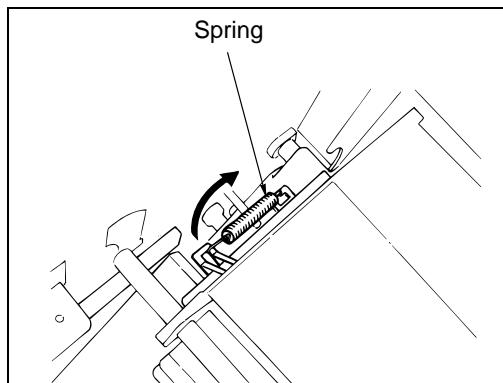
- (5) Detach the E-ring and the bearing.



- (6) Open the front cover, and detach the front E-ring and the bearing.



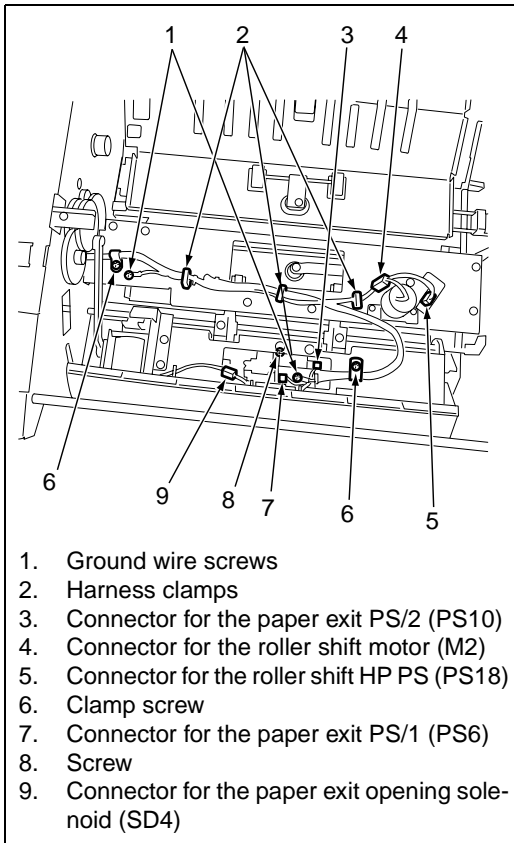
- (7) Remove the spring.



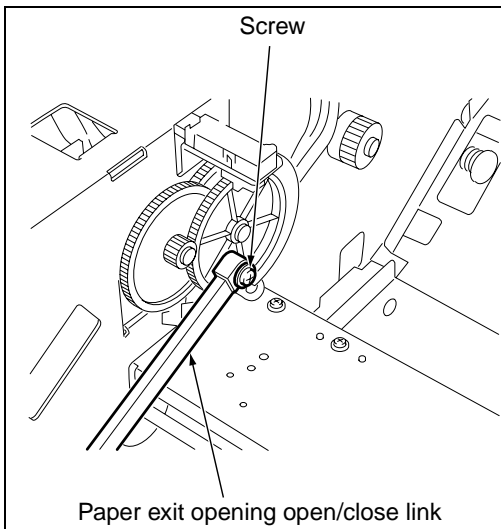
- (8) Remove two clamp screws and two ground wire screws.
- (9) Remove the connectors of roller shift motor (M2), roller shift PS (PS18), paper exit opening SD (SD4), and paper exit PS/1 (PS6).
- (10) Remove one screw and detach the paper exit PS/2 (PS10) from the unit, then remove the connector.

Note: When detaching the paper exit PS/2 (PS10), beware not to add too much stress onto the actuator located under the paper exit PS/2.

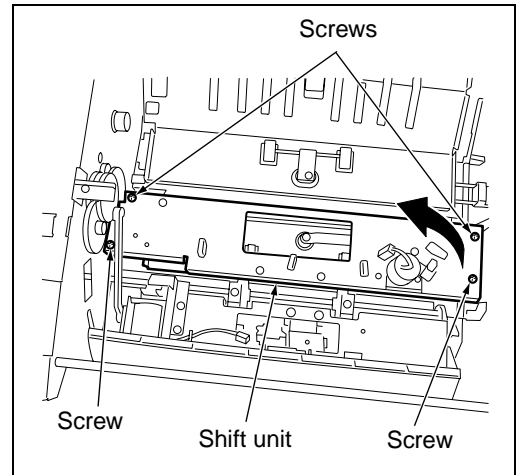
(11) Remove harnesses from three clamps.



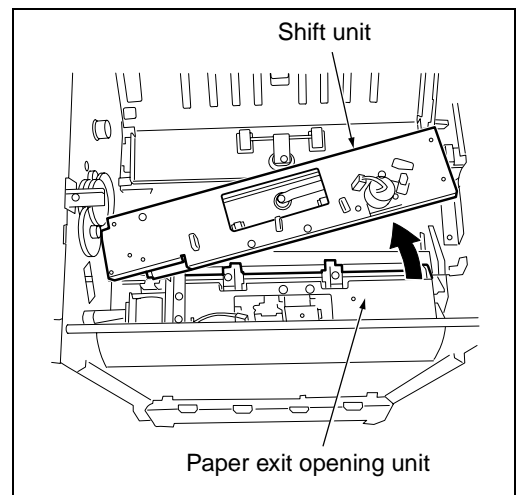
(12) Remove one screw and release the paper exit opening open/close link.



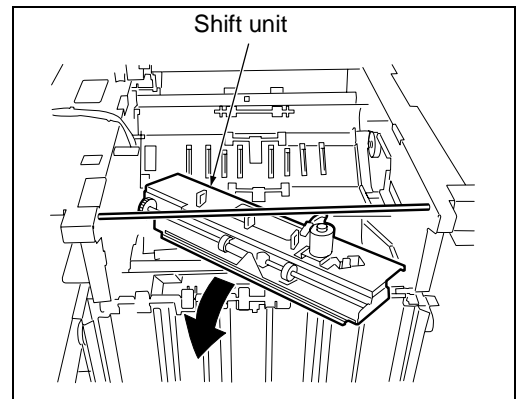
(13) Remove four screws and tilt the shift unit.



(14) Lift and detach the paper exit opening unit.



(15) Remove the shift unit from the paper exit side.

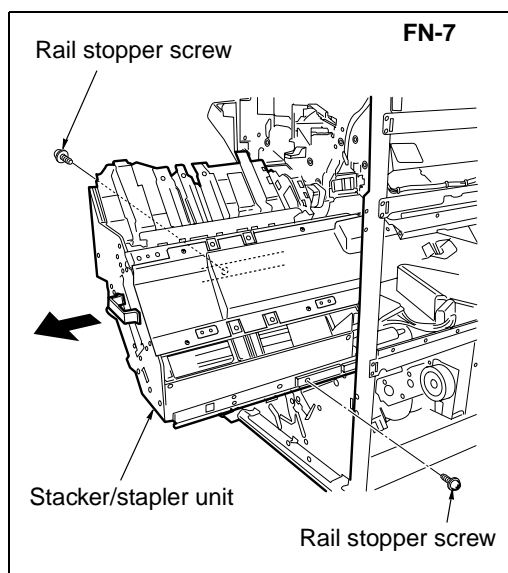
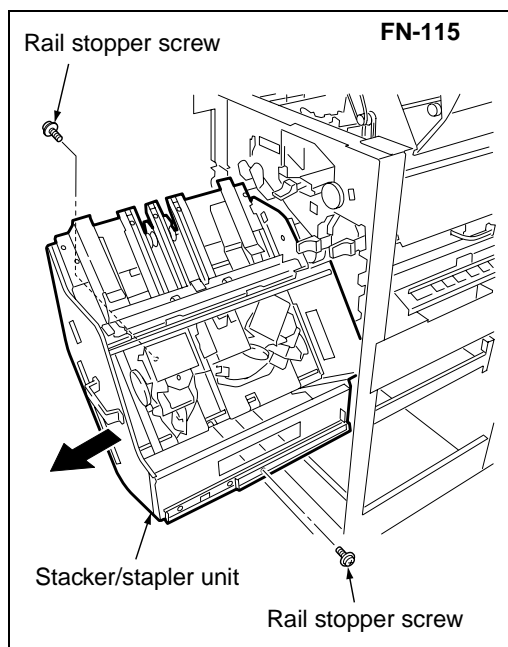


(16) Reinstall the parts by following the removal steps in reverse.

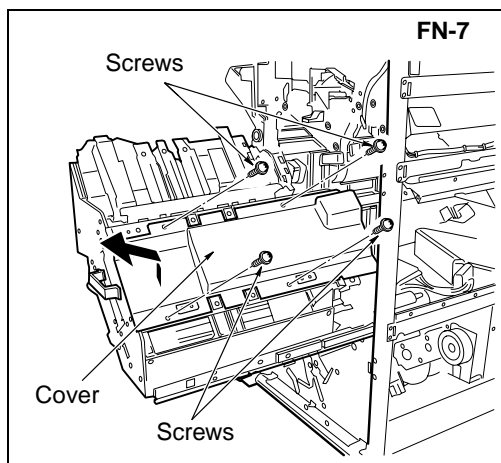
[3] Removing and Reinstalling the Stacker/Stapler Unit

a. Procedure

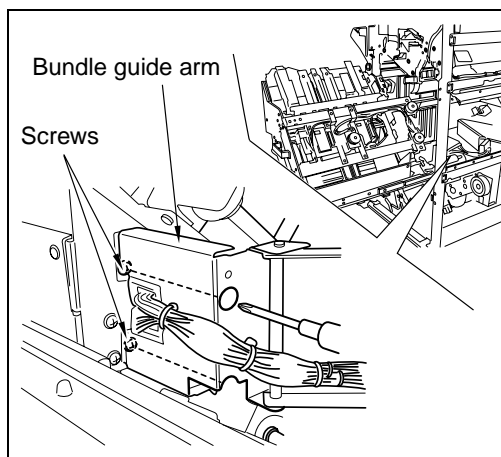
- (1) Open the front cover and pull the stacker/stapler unit part of the way out.
- (2) Remove the two rail-stopper set screws. Then pull the stacker/stapler unit all of the way out.



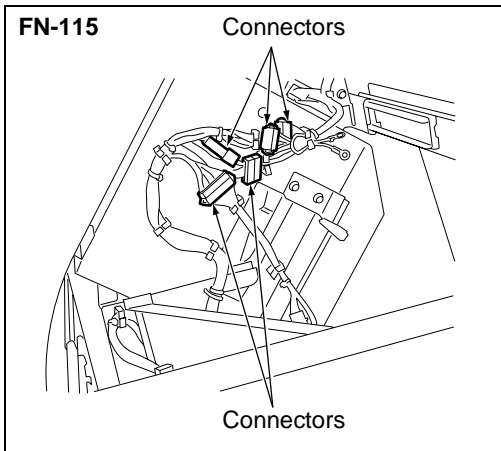
- (3) Remove four set screws holding the cover in place, and remove the cover. (FN-7 only)



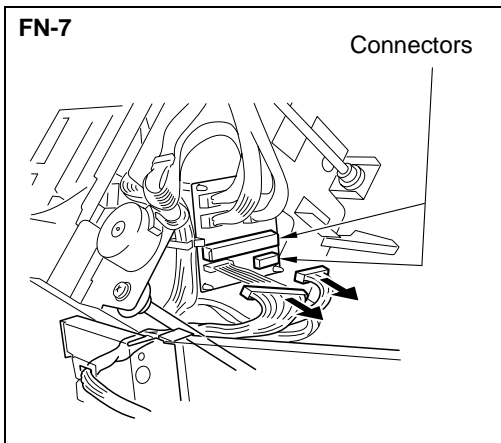
- (4) Remove the two set screws holding the bundle guide arm to the stacker/stapler unit.



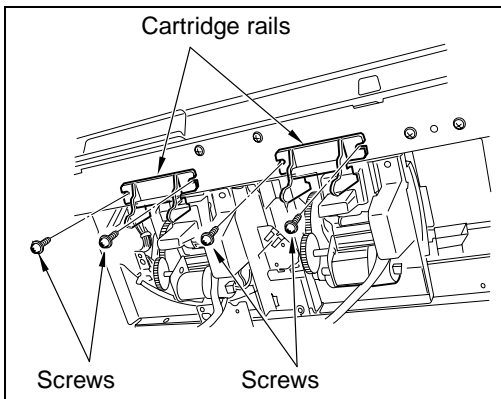
- (5) For FN-115
Remove five relay connectors (FN-115 only).



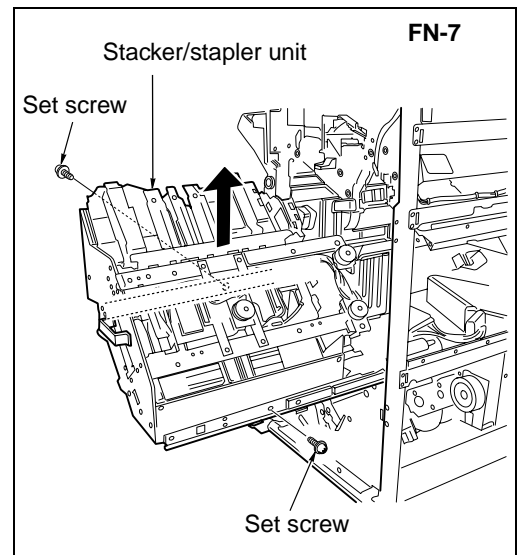
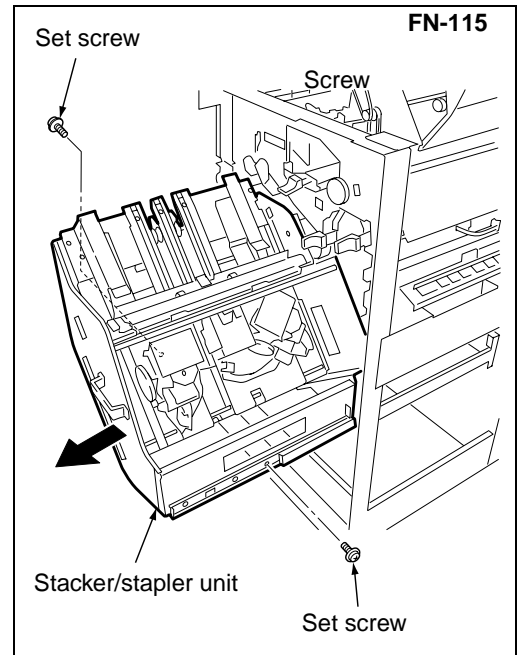
- (5) For FN-7
Detach the two connectors from the connector board at the rear of the stacker/stapler unit. (FN-7 only)



- (6) Remove two screws from each side of the cartridge rails to remove the cartridge rails.



- (7) Remove the final two set screws holding the stacker/stapler unit in place. Remove the stacker/stapler unit.



- (8) Reinstall the stacker/stapler unit in the opposite sequence to removal.

STAPLER UNIT



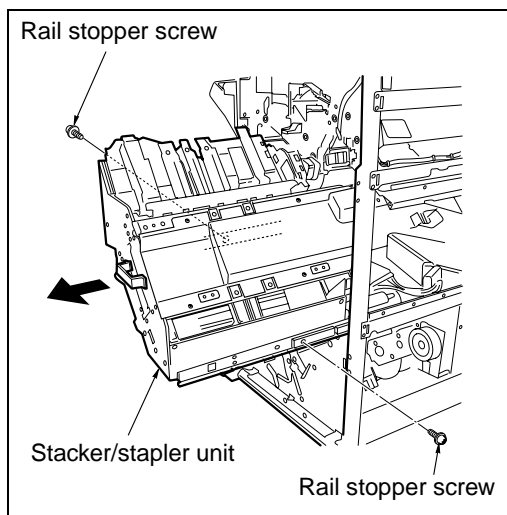
Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

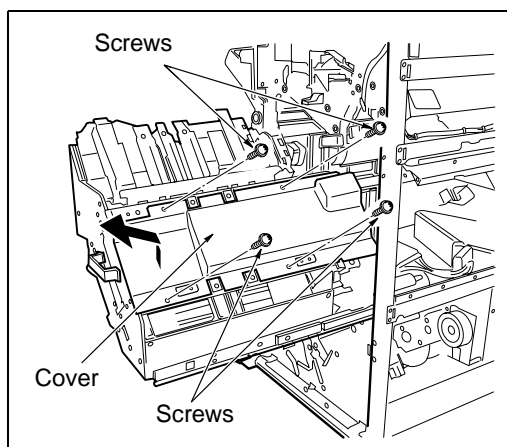
[1] Exchanging the clincher (FN-7 only)

a. Procedure

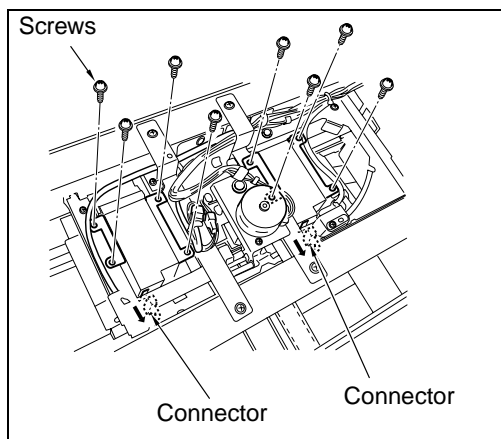
- (1) Remove the front cover.
- (2) Pull out the stacker/stapler unit by pulling on the handle.
- (3) Remove the two rail-stopper set screws.



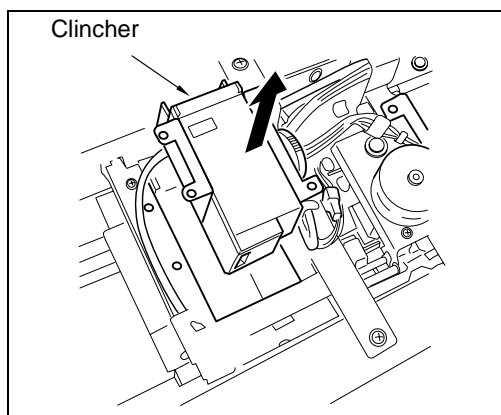
- (4) Remove four set screws holding the cover in place, and remove the cover.



- (5) Detach the connector from the clincher you wish to replace, and remove the four set screws holding the clincher in place.



- (6) Lift the clincher up and out.

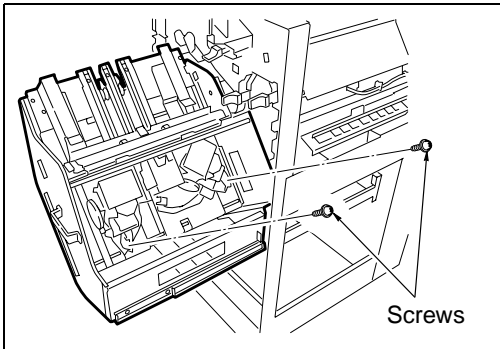


- (7) To install the new clincher, carry out the above sequence in reverse.
- (8) Adjust the stapler vertical positioning.

[2] Removing and Reinstalling a Stapler (For FN-115)

a. Procedure

- (1) Open the front cover.
- (2) Pull out the stacker/stapler unit by pulling on the handle.
- (3) Remove the cartridge from the stapler.
- (4) Detach the two connector (if stapler-R, CN 201 and CN 202; if stapler-F, CN 203 and CN 204).
- (5) Remove the set screw holding the stapler unit in place, and remove the stapler unit.

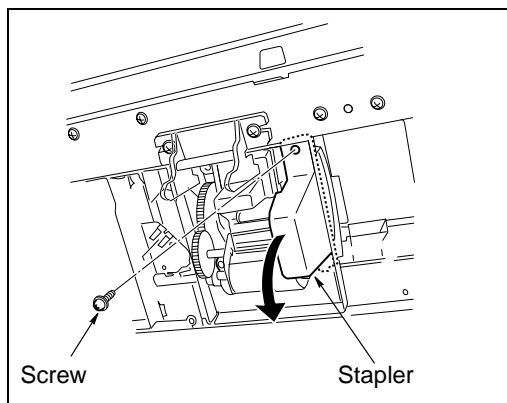


- (6) Reinstall in the opposite sequence to removal.

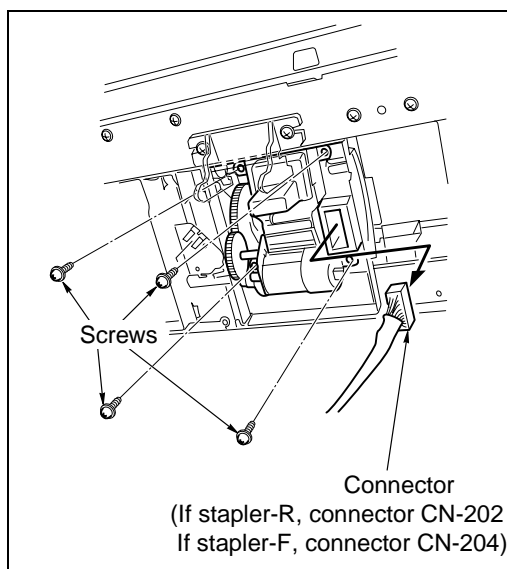
[3] Removing and Reinstalling a Stapler (For FN-7)

a. Procedure

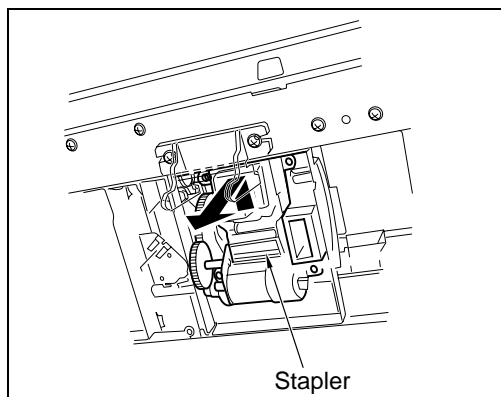
- (1) Open the front cover.
- (2) Pull out the stacker/stapler unit by pulling on the handle.
- (3) Remove the cartridge from the stapler.
- (4) Remove the set screw holding the connector cover in place, and remove the connector cover.



- (5) Detach the stapler connector (if stapler-R, CN-202; if stapler-F, CN-204), and remove the 4 set screws holding the stapler in place.



- (6) Lift the stapler slightly and remove it.



- (7) Reinstall in the opposite sequence to removal.
- (8) Adjust the stapler vertical positioning.

MAIN TRAY SECTION

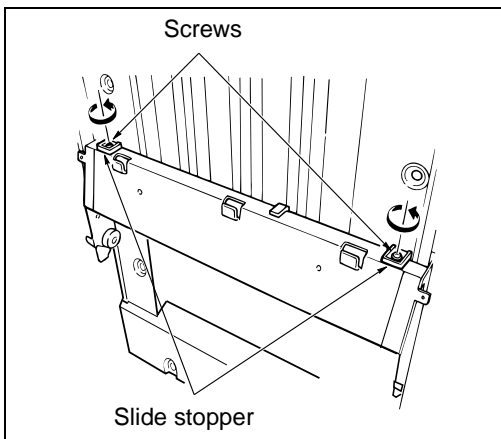
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

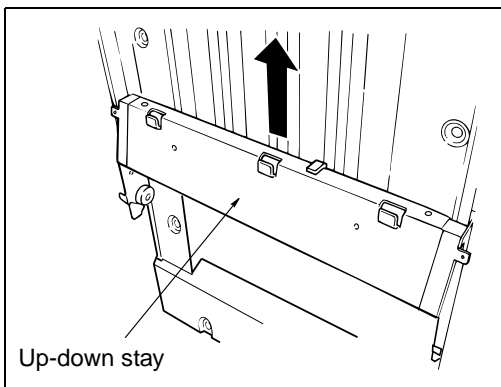
[1] Removing and Reinstalling the Up-Down Stay

a. Procedure

- (1) Remove the following parts.
 - Rear cover
 - Front cover
 - Front side cover
 - Main tray
- (2) With the up-down stay and exit-stopper plate in contact, remove the exit-stopper plate. (See "Removing and Reinstalling the Exit Stopper Plate.")
- (3) Remove the two slide stoppers (removing one screw at each stopper).



- (4) Slide the up-down stay upward to remove it.



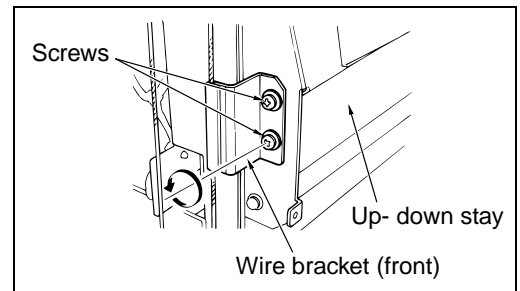
- (5) Reinstall the stay in the opposite sequence to removal.

[2] Exchanging the Up-Down Wire

Caution: The following procedure shows replacement of the rear wire. Removal of the front wire is similar, but relationships are inverted (mirror image).

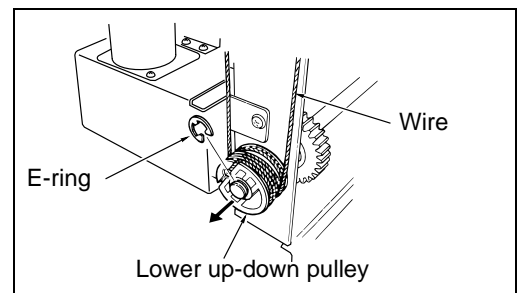
a. Procedure

- (1) Remove the following parts.
 - Rear cover
 - Front cover
 - Front side cover
 - Main tray
- (2) Remove the four wire-bracket set screws (two screws at the front wire bracket and two screws at the rear wire bracket), and take off the up-down stay.

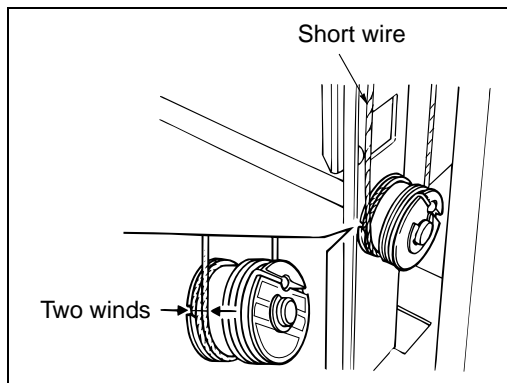


- (3) Remove the E-ring and the lower up-down pulley, and remove the wire you are replacing.

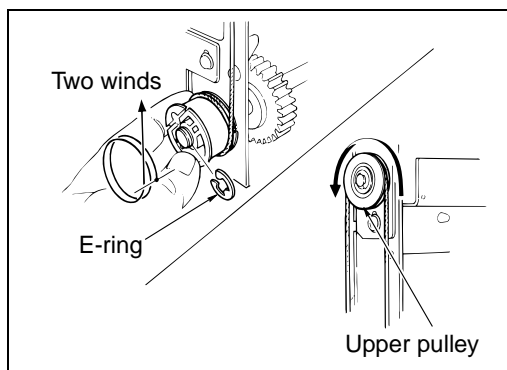
Caution: There is a pin located in the inside of the pulley. Take care to avoid losing the pin when removing the pulley.



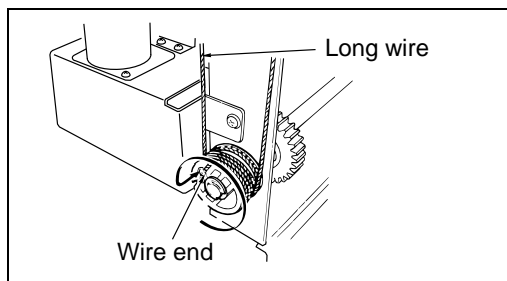
- (4) Move the up-down stay as necessary so that front inner wire (the shorter side from the wire bracket) is wound twice around the pulley.



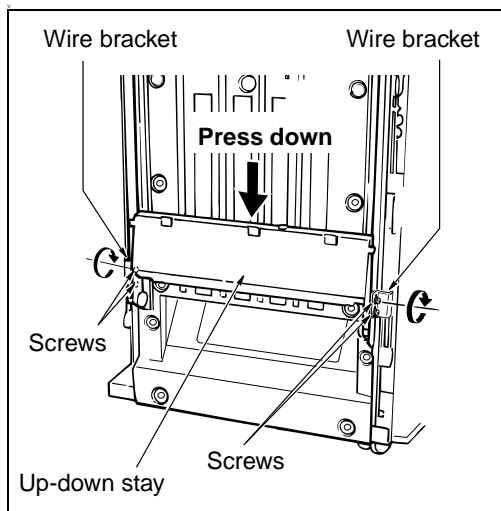
- (5) Wind the shorter side of the rear wire (relative to the wire bracket) twice around the up-down pulley.
 (6) Adjust the wire-bracket position so that it is even with the front wire bracket. Insert the pin, and then fasten the pulley into place with the E-ring.
 (7) Fit the wire onto the upper pulley.



- (8) Wind the opposite side of the wire (the long side) from the inside of the up-down pulley toward the outside, and fix the wire end in place.

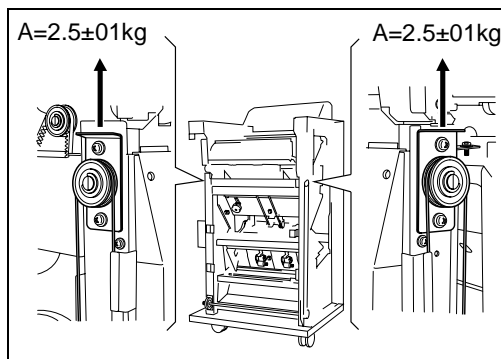


- (9) Press down on the up-down stay and refasten the four wire-bracket set screws.



- (10) Loosen the two belt-tensioner set screws.
 (11) Using a tension gauge or spring balance, pull the belt tensioner so that tension A is at the value indicated below. Maintain this tension while retightening the screws.

Spec value for tension: $A = 2.5 \pm 0.1\text{kg}$



- (12) Reinstall the wire in the opposite sequence to removal.

FOLDING UNIT (FN-7 ONLY)

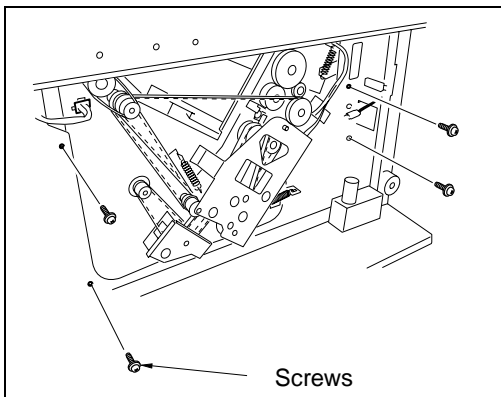
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

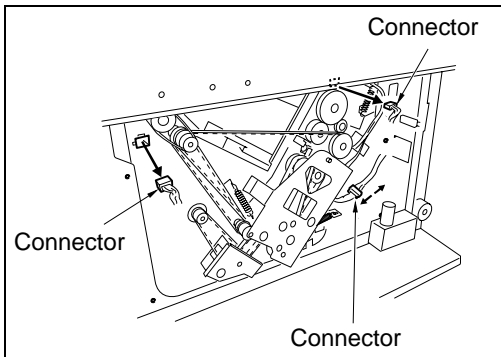
[1] Removing and Reinstalling the Folding Unit

a. Procedure

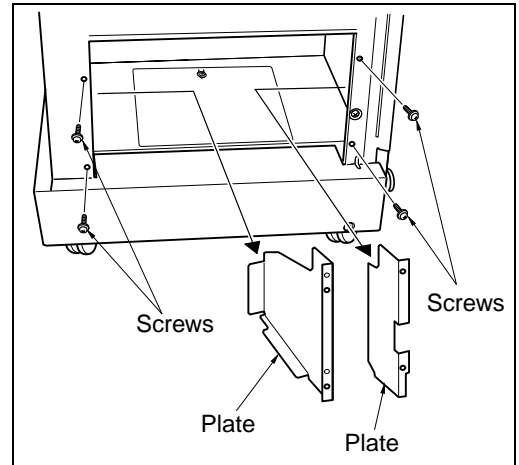
- (1) Remove the plate on the fold exit side.
- (2) Remove the rear cover.
- (3) Remove four set screws at the rear, as illustrated below.



- (4) Detach three connectors.



- (5) Remove four set screws and detach the two plates (front and back plates) at the booklet exit.

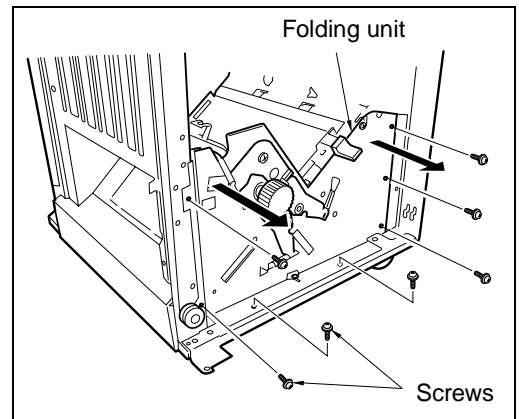


- (6) Remove seven set screws at the front.

- (7) Pull the folding unit out and off.

Note1: Be careful to keep the unit clear of the up/down wires when removing it.

Note2: Be careful to keep the harness from catching on the FNS body.



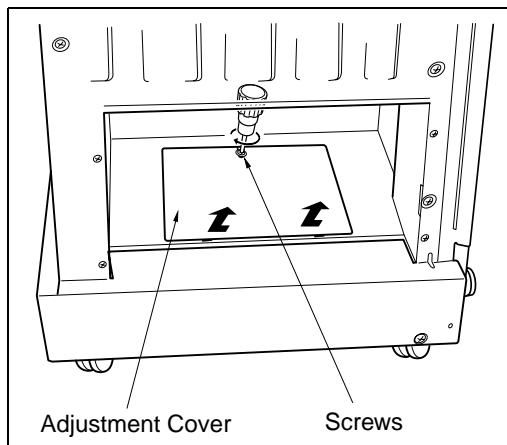
- (8) Reinstall the unit in the opposite sequence to removal.

Note: When reinstalling the folding unit, take care to keep the connectors and harness from getting caught between the unit and the FNS body.

[2] Removing and Reinstalling the Adjustment Cover

a. Procedure

- (1) Use a stubby screwdriver to remove the set screw holding the cover in place, and take the cover off.



- (2) Reinstall the cover in the opposite sequence to removal.

PAPER FEED UNIT

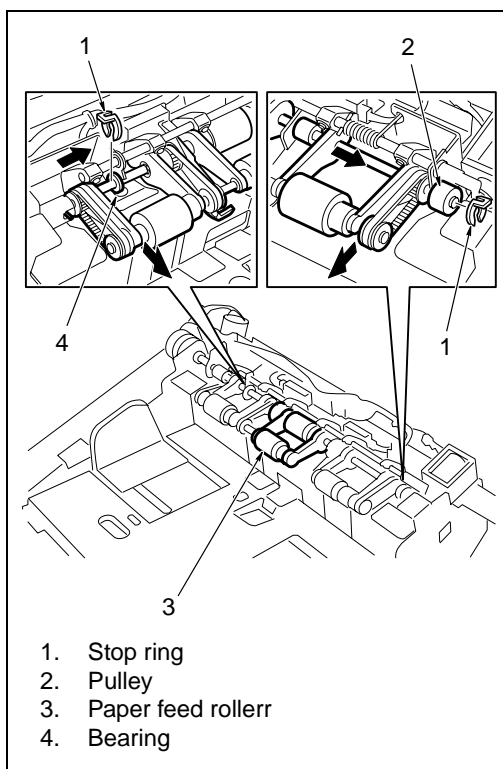
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

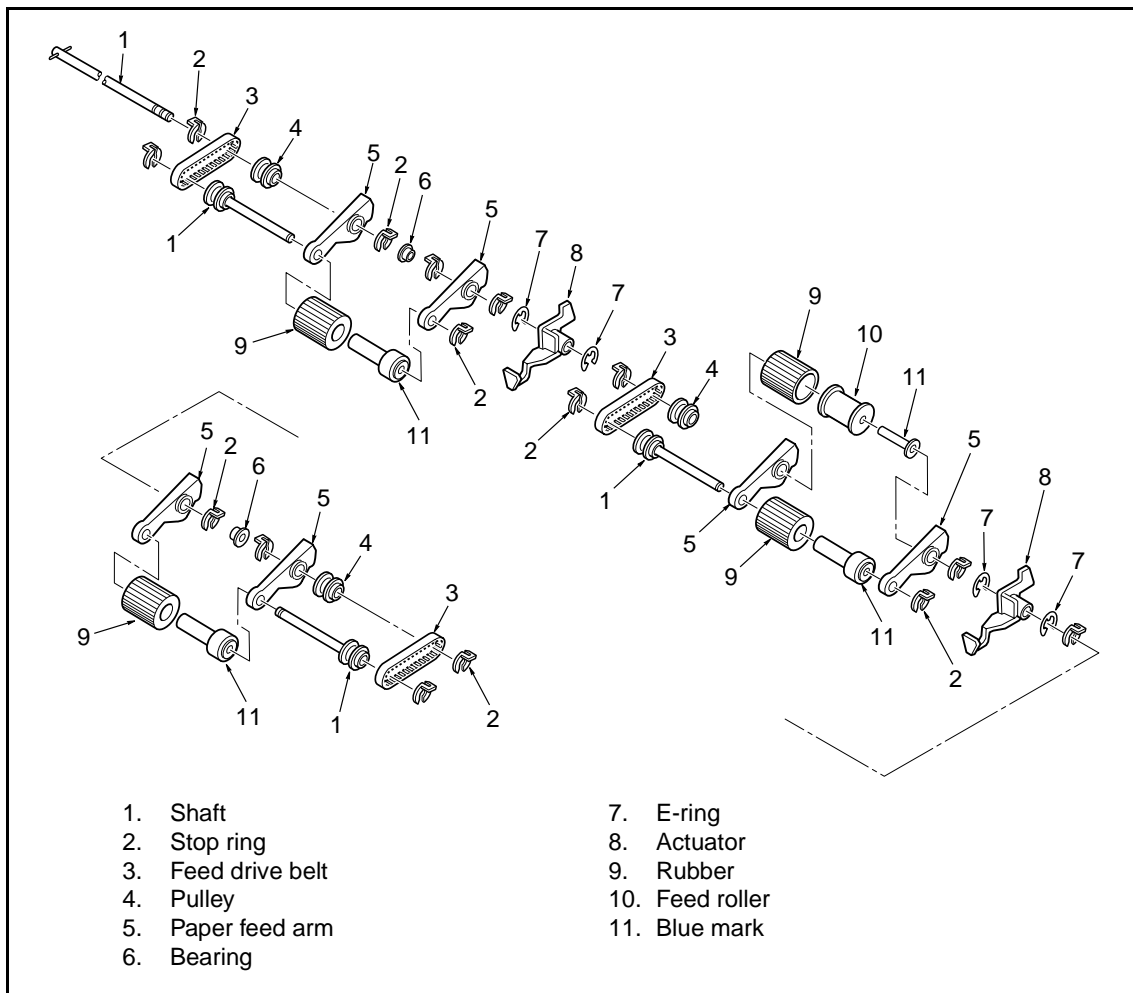
[1] Replacing a Paper-Feed Roller and Feed Roller

a. Procedure

- (1) Remove the cover.
- (2) Remove the two stop rings, then shift the bearing and pulley outward, and remove the feed roller unit.



- (3) Pull out eighteen stop rings,the bearing, the two actactuators and four shaft of the feed-roller unit then remove each roller .



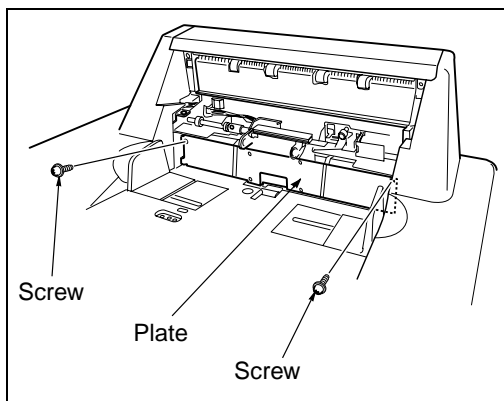
- (4) Re-install the paper-feed roller and feed roller in the opposite sequence to removal.

Note: Ensure that the mounting direction of the rubber is correct.

[2] Replacing the Rubber, Double-Feed Prevention Roller

a. Procedure

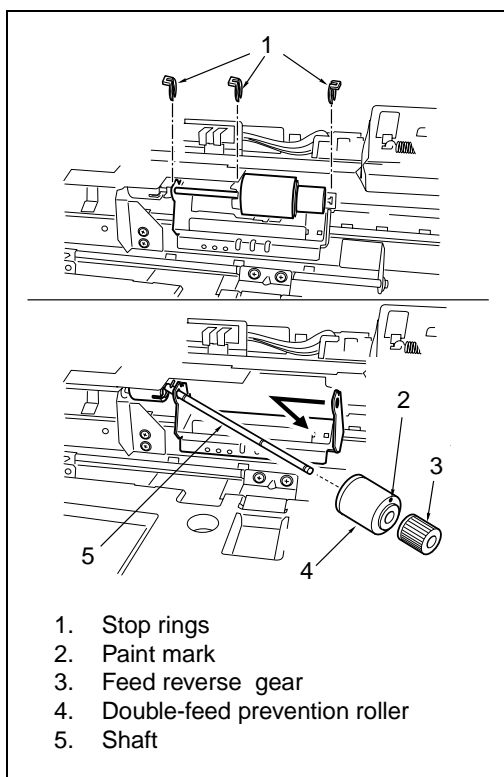
- (1) Remove the cover.
- (2) Remove the feed-roller unit. Refer to the previous procedure for instructions on removing the unit.
- (3) Remove the two set screws, Then remove the plate.



- (5) Remove the rubber from the double-feed-prevention roller.
- (6) Re-install the removed parts in the reverse sequence to removal.

Note: Ensure that the mounting direction of the rubber is correct.

- (4) Remove the 3 stop rings, then pull out the shaft, and remove the double-feed-prevention roller together with the feed-reverse gear.



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EXTERNAL SECTION



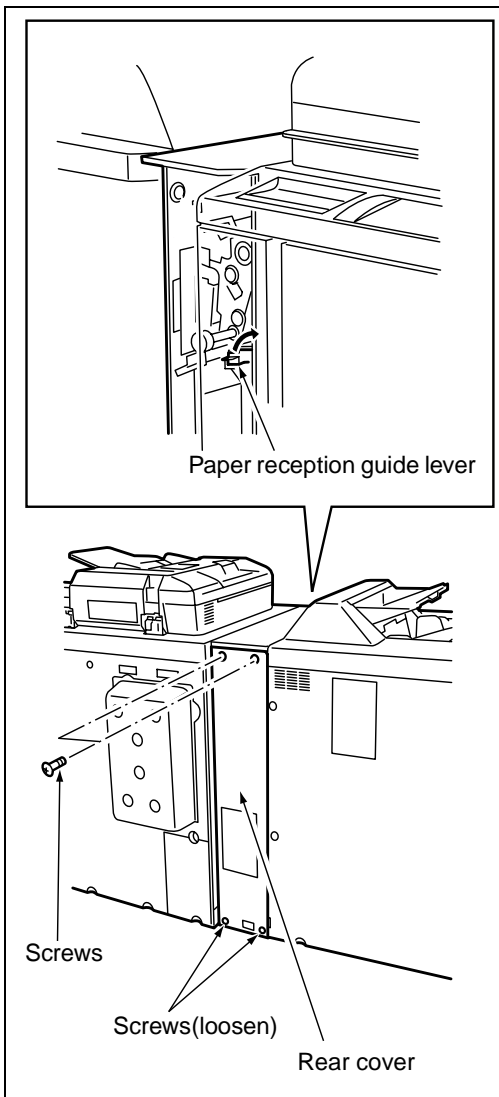
Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

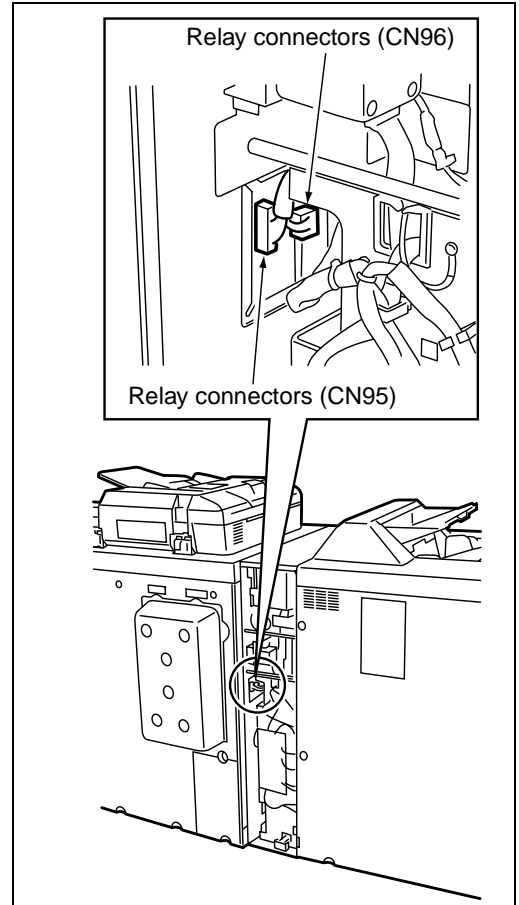
[1] Removing the PU (Puncher)

a. Procedure

- (1) Loosen the two screws in the lower part of the rear cover of the PU, then remove the two screws in the upper part to remove the rear cover.
- (2) Open the front door of the FNS and raise the paper reception guide lever of the PU to retract the paper reception guide in the PU.



- (3) Remove the three screws securing the PU to the main body, draw out the PU, and remove the two relay connectors (CN95 and CN96) of the PU from the main body.



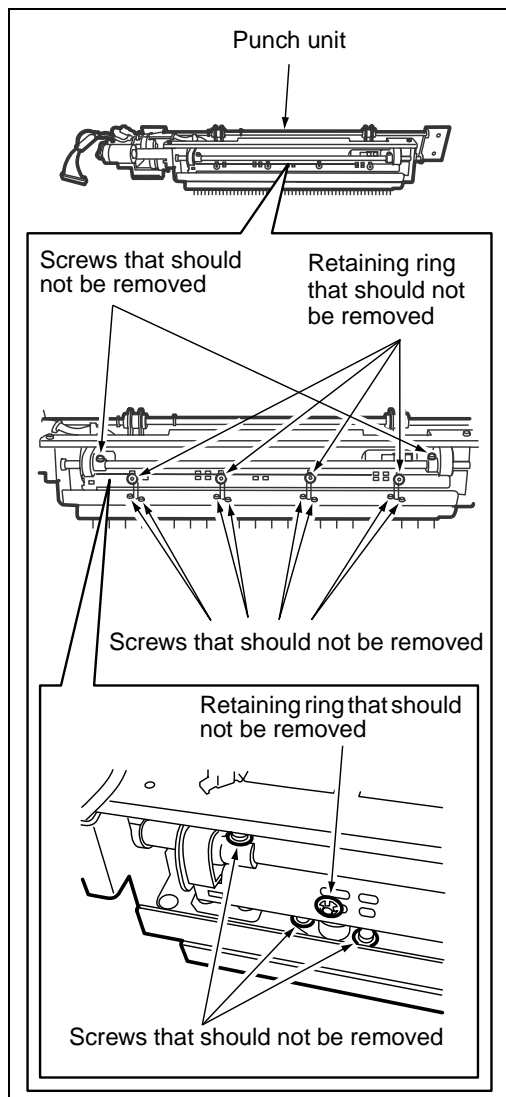
- (4) Remove the two screws (front side) fixing the PU and the FNS, and remove two screws (rear side) fixing the positioning plate.
- (5) Pull the lever of the FNS installation stay to release the fixing the PU and the FNS, and detach the PU by lifting.
- (6) Remove the two relay connectors of the FNS from the PU.
- (7) Reinstall the above parts following the removal steps in reverse.

PUNCH SECTION

[1] Replacing the Punch unit

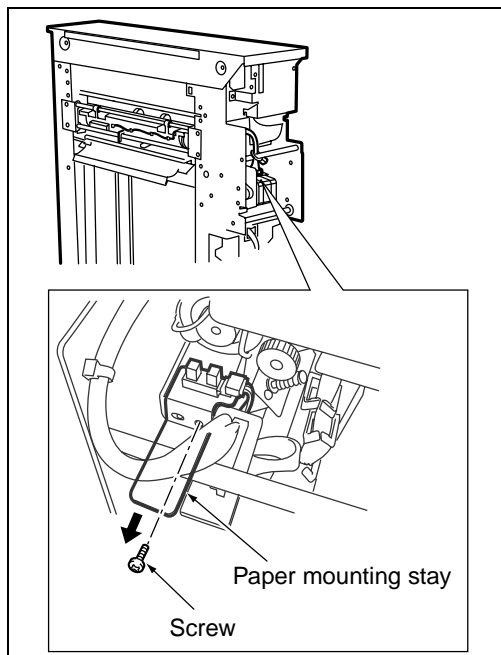
Note: Be sure to unplug the power cords of the main body and this machine from the wall outlet.

Note: The following screws should not be removed. If you do, punching cannot be done as designed.

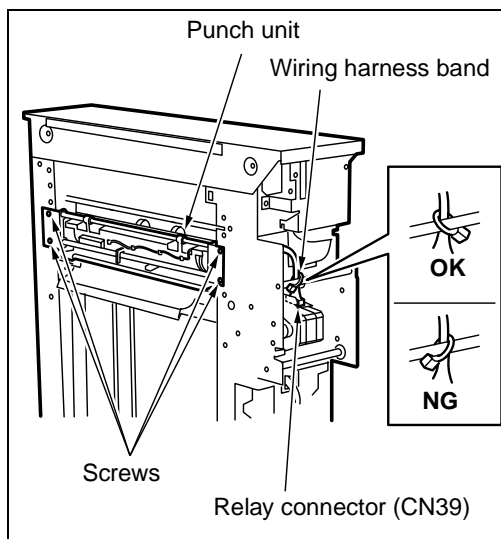


a. Procedure

- (1) Remove the sensor mounting stay by removing a screw.



- (2) Cut the wiring harness band and disconnect the relay connector (CN39) upward.
- (3) Remove the punch unit by removing four screws.

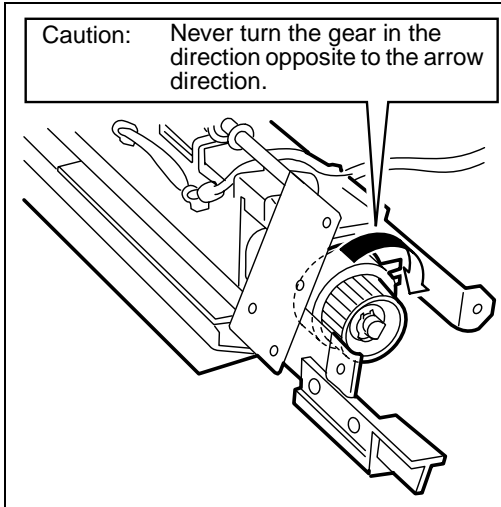


- (4) Reinstall the above parts following the removal steps in reverse.

Note: When reinstalling, harness the band in same direction. (see the figure is step (3))

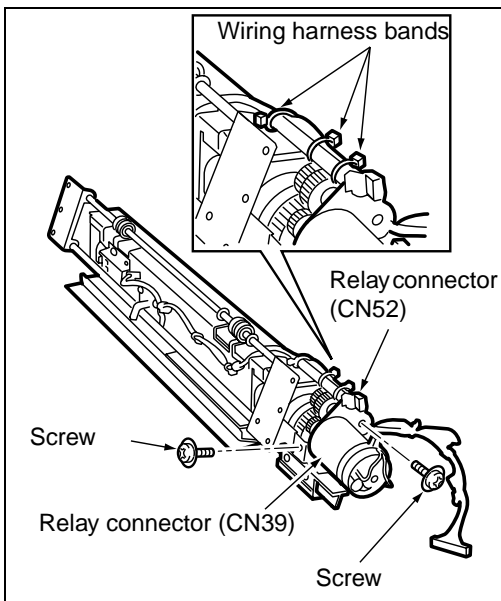
[2] Replacing the Punch Clutch (MC1)

Note: The punch unit gear rotates only in the direction of the arrow.
Never turn it in the direction opposite to the arrow direction. If you do so, the MC1 (punch clutch) will break.

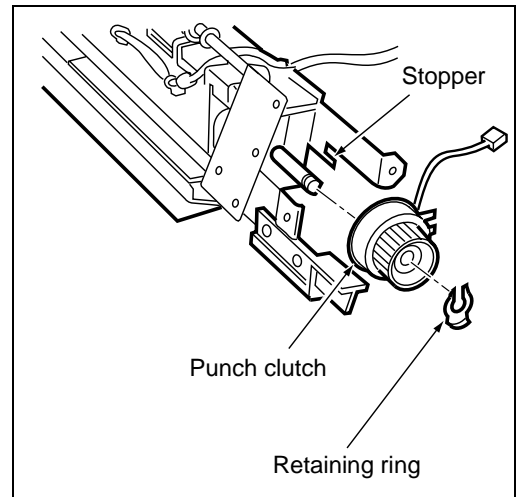


a. Procedure

- (1) Remove the punch unit. See "[1] Replacing the Punch unit."
- (2) Remove the punch motor unit by removing two screws.
- (3) Cut the three wiring harness bands and disconnect the punch clutch relay connector (CN52).



- (4) Remove the punch clutch by removing the retaining ring.



- (5) Reinstall the above parts following the removal steps in reverse.

Caution1: Fasten all the three wiring harness bands with the tightening part oriented as shown in the illustration. See the figure in step (3).

Caution2: When installing the punch motor unit, push the punch motor gear against the punch clutch gear. After installing the punch motor unit, check for backlash.

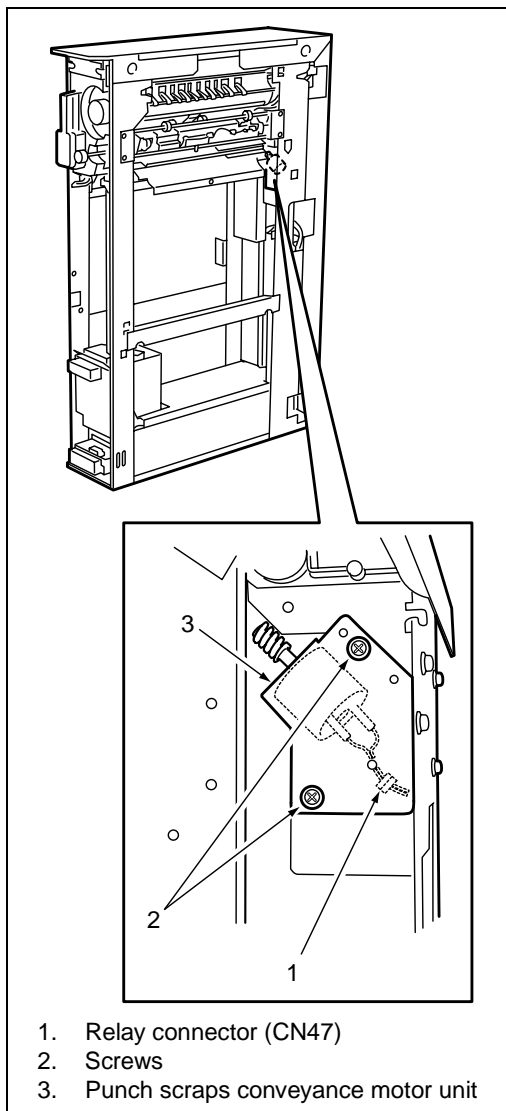
Caution3: When installing the punch clutch, take care of the position of the stopper.

PUNCH SCRAPS CONVEYANCE SECTION

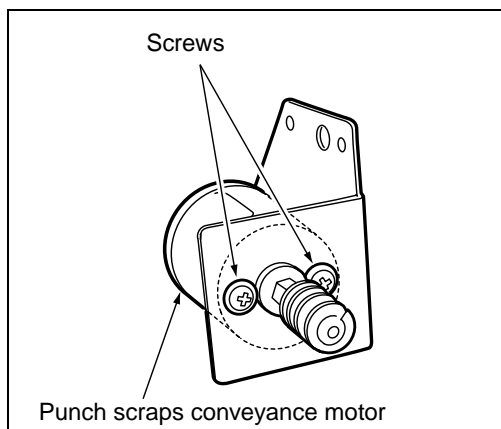
[1] Replacing the Punch Scraps Conveyance motor (M7)

a. Procedure

- (1) Disconnect the relay connector (CN47)
- (2) Remove the punch scraps conveyance motor unit by removing the two screw.



- (3) Remove the punch scraps conveyance motor from the bracket by removing the two screws.



- (4) Apply grease (Plus guard No.2) to the worm gear of the new punch scraps conveyance worm gear.
- (5) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the M7 (with a bracket), provide backlash. Installing the M7 too closely to the right end will reduce backlash to zero.

EXTERNAL SECTION

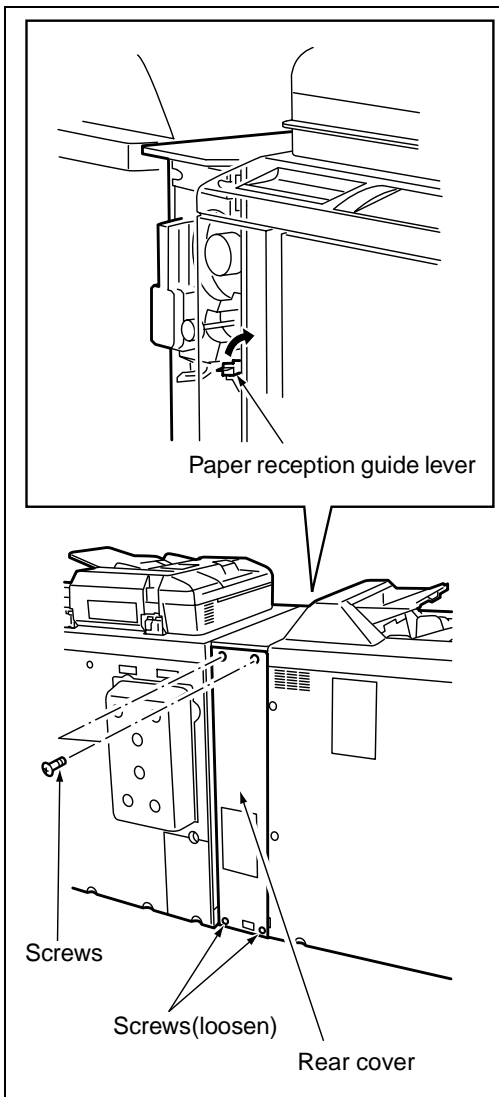
⚠ Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

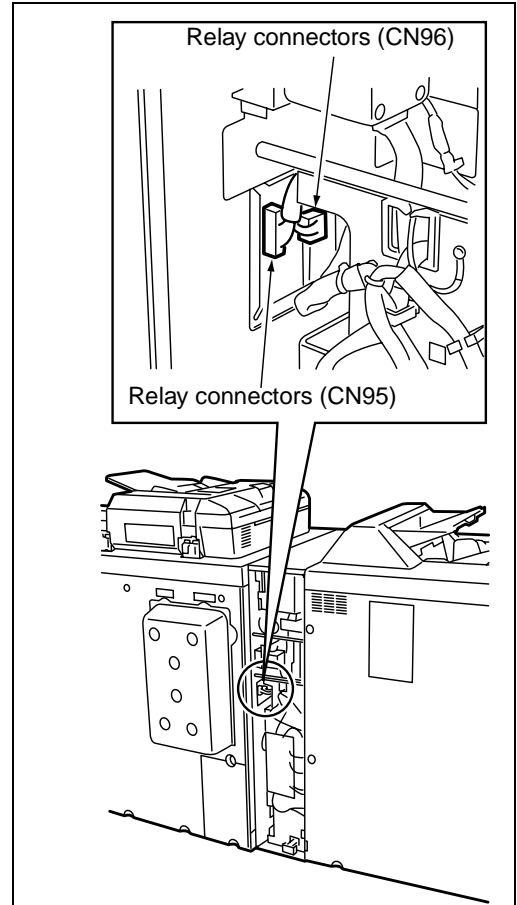
[1] Removing the PZ

a. Procedure

- (1) Loosen the two screws in the lower part of the rear cover of the PZ, then remove the two screws in the upper part to remove the rear cover.
- (2) Open the front door of the FNS and raise the paper reception guide lever of the PZ to retract the paper reception guide in the PZ.



- (3) Remove the three screws securing the PZ to the main body, draw out the PZ, and remove the two relay connectors (CN95 and CN96) of the PZ from the main body.



- (4) Remove the two screws (front side) fixing the PZ and the FNS, and remove two screws (rear side) fixing the positioning plate.
- (5) Pull the lever of the FNS installation stay to release the fixing the PZ and the FNS, and detach the PZ by lifting.
- (6) Remove the two relay connectors of the FNS from the PZ.
- (7) Reinstall the above parts following the removal steps in reverse.

PUNCH SECTION

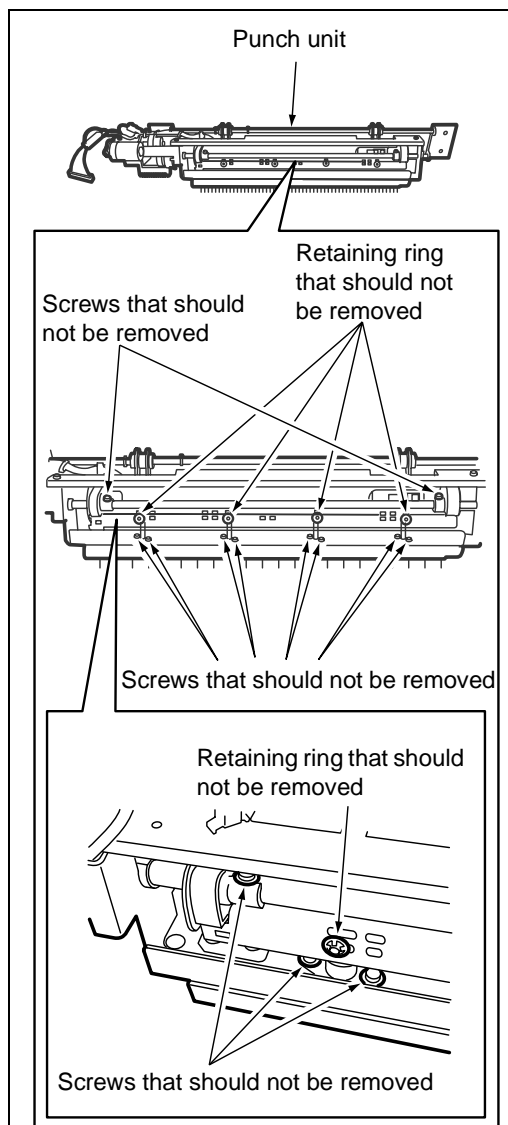


Caution:

When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

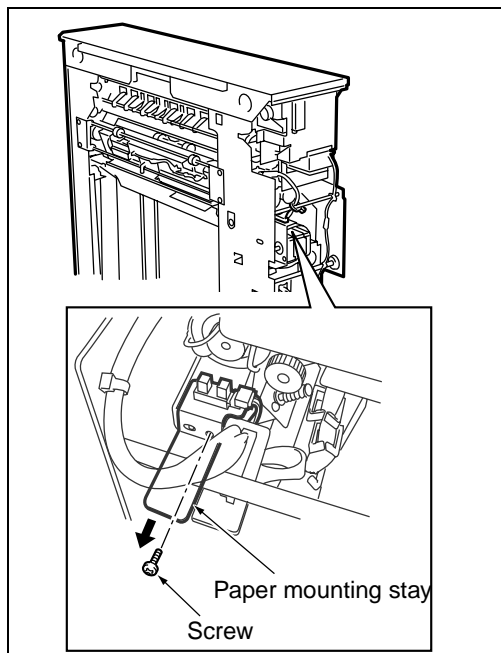
[1] Replacing the Punch unit

Note: The following screws should not be removed. If you do, punching cannot be done as designed.

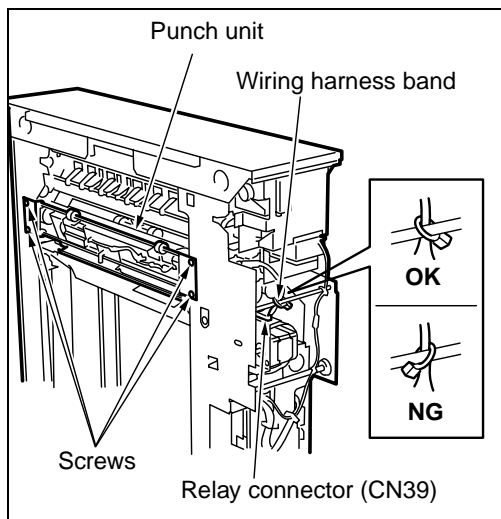


a. Procedure

- (1) Remove the sensor mounting stay by removing a screw.



- (2) Cut the wiring harness band and disconnect the relay connector (CN39) upward.
- (3) Remove the punch unit by removing four screws.

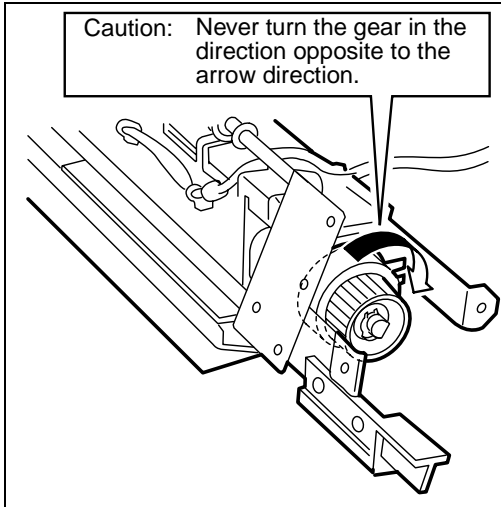


- (4) Reinstall the above parts following the removal steps in reverse.

Note: When reinstalling, harness the band in same direction. (see the figure is step (3))

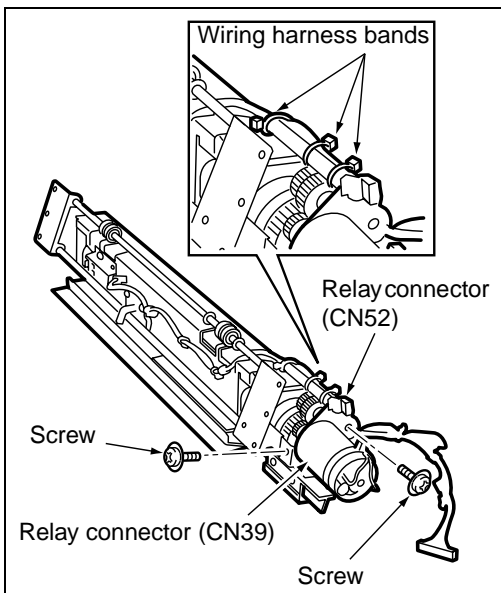
[2] Replacing the Punch Clutch (MC1)

Note: The punch unit gear rotates only in the direction of the arrow.
Never turn it in the direction opposite to the arrow direction. If you do so, the MC1 (punch clutch) will break.

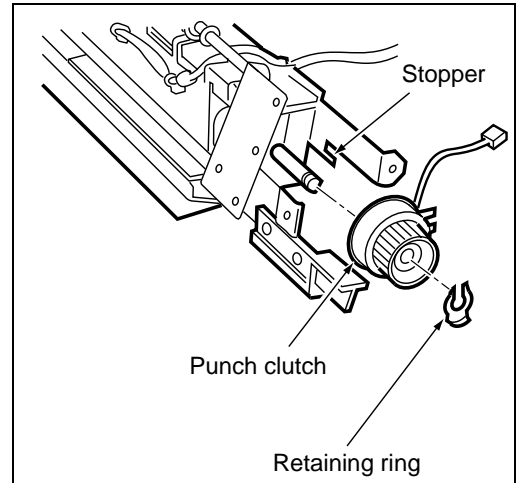


a. Procedure

- (1) Remove the punch unit. See "[1] Replacing the Punch unit."
- (2) Remove the punch motor unit by removing two screws.
- (3) Cut the three wiring harness bands and disconnect the punch clutch relay connector (CN52).



- (4) Remove the punch clutch by removing the retaining ring.



- (5) Reinstall the above parts following the removal steps in reverse.

Note1: Fasten all the three wiring harness bands with the tightening part oriented as shown in the illustration. See the figure in step (3).

Note2: When installing the punch motor unit, push the punch motor gear against the punch clutch gear. After installing the punch motor unit, check for backlash.

Note3: When installing the punch clutch, take care of the position of the stopper.

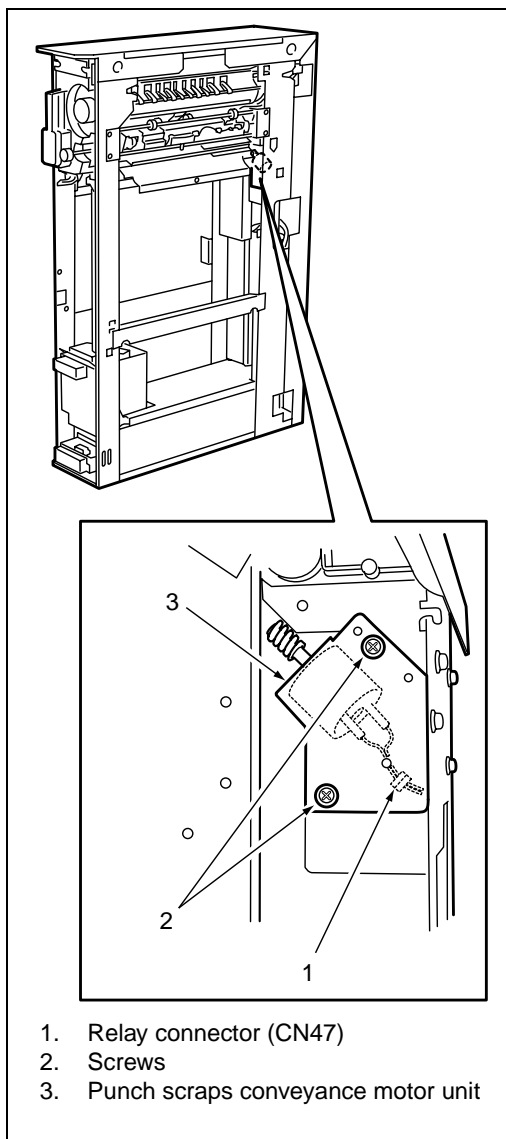
PUNCH SCRAPS CONVEYANCE SECTION

[1] Replacing the Punch Scraps Conveyance Motor (M7)

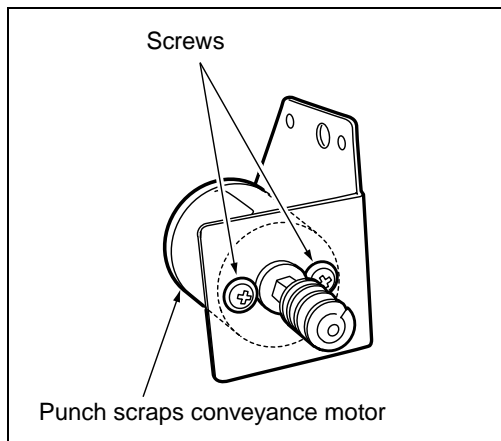
Note: Be sure to unplug the power cords of the main body and this machine from the wall outlet.

a. Procedure

- (1) Disconnect the relay connector (CN47)
- (2) Remove the punch scraps conveyance motor unit by removing the two screw.



- (3) Remove the punch scraps conveyance motor from the bracket by removing the two screws.



- (4) Apply grease (Plus guard No.2) to the worm gear of the new punch scraps conveyance worm gear.
- (5) Reinstall the above parts following the removal steps in reverse.

Note: When installing the M7 (with a bracket), provide backlash.
Installing the M7 too closely to the right end will reduce backlash to zero.

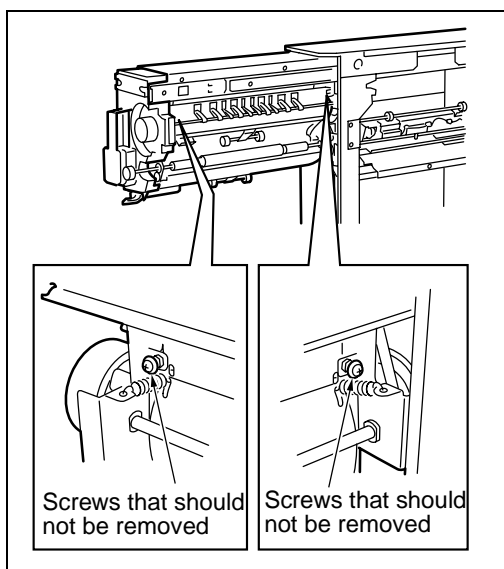
Z-FOLDING SECTION

[1] Removing and Installing the Z-folding/Conveyance Unit

Note: Be sure to unplug the power cords of the main body and this machine from the wall outlet.

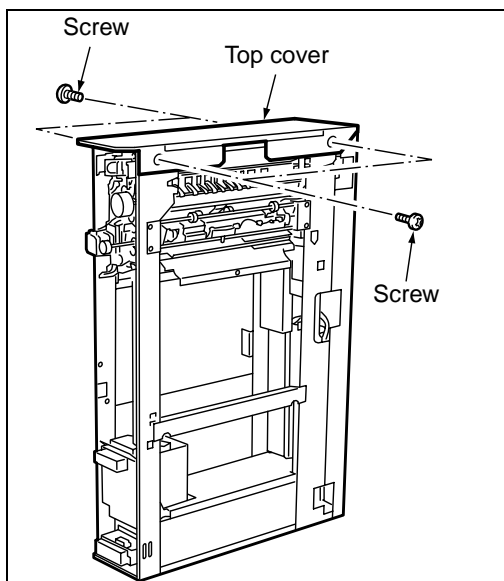
Note1: Take care of the z-folding/conveyance unit dropping since it is heavy.

Note2: The following screws should not be or removed. If you do z-folding cannot be done as designed.



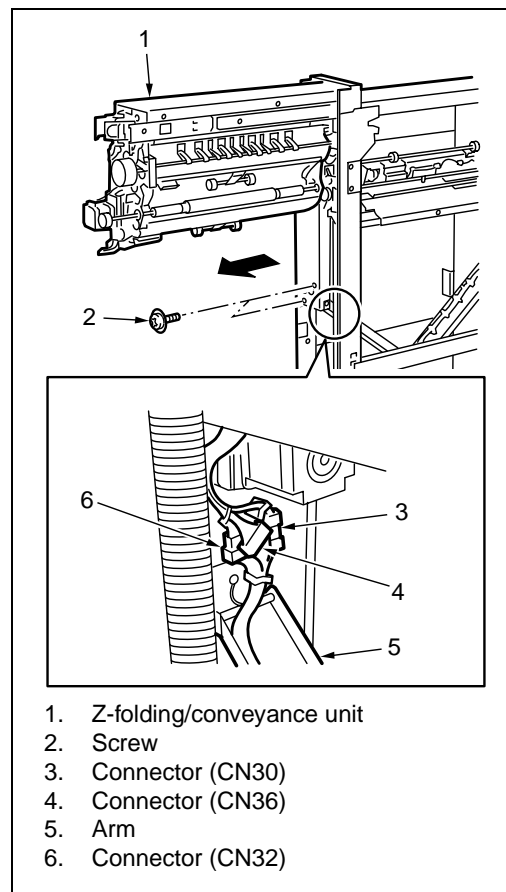
a. Procedure

- (1) Remove the PZ from the main body and FNS.
- (2) Remove four screws to remove the top cover.



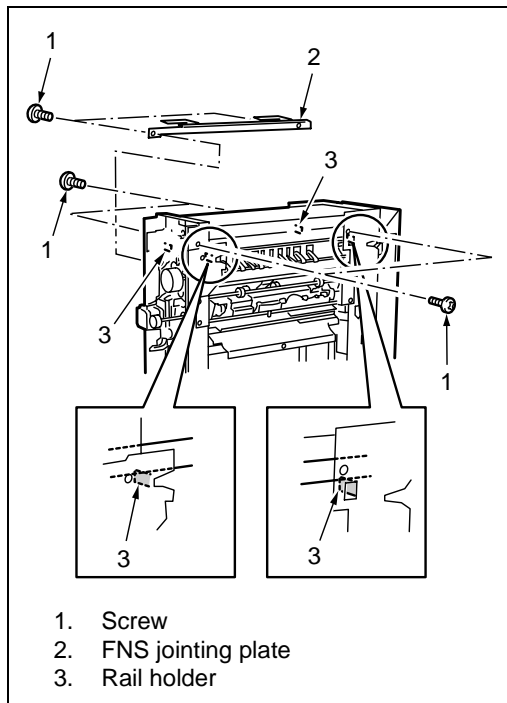
- (3) Pull out the z-folding/conveyance unit.
- (4) Disconnect three connectors (CN30, CN32, CN36) at the arm joint section.
- (5) Remove two screws to remove the arm.

Note: The arm should be held by the hand when removal, since it falls.



- (6) Return the z-folding/conveyance unit to the basis.

- (7) Remove two screws to remove the FNS jointing plate.
- (8) Remove four screws to remove the z-folding/conveyance unit with the rails pulling out to the front.



- (9) Install the above parts following the removal steps in reverse.

Note: Put the z-folding/conveyance unit on four rail holders certainly when installing. (For fall prevention)

TRIMMER SECTION



Caution:

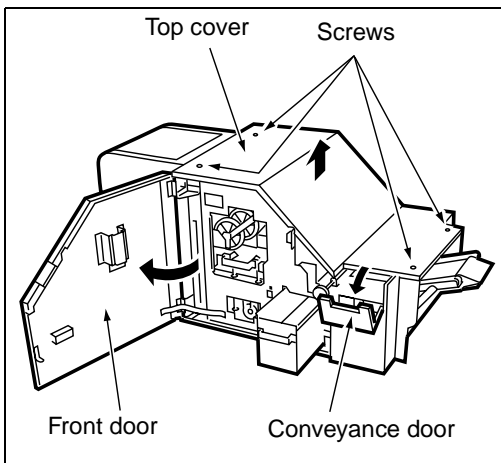
When disassembling and reassembling the machine, Be sure the power cord has been unplugged from the wall outlet.

[1] Replacing the Upper and Lower Knives

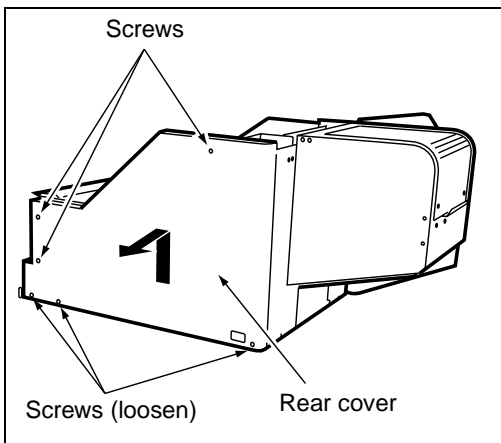
Caution: Trimming knives (upper and lower) are used in this machine. Be extremely careful in handling these knives.

a. Procedure

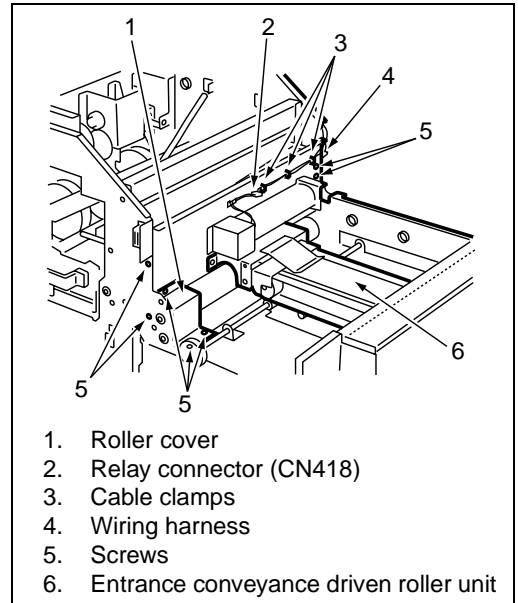
- (1) Open the front door and conveyance door.
- (2) Remove the four screws to detach the top cover



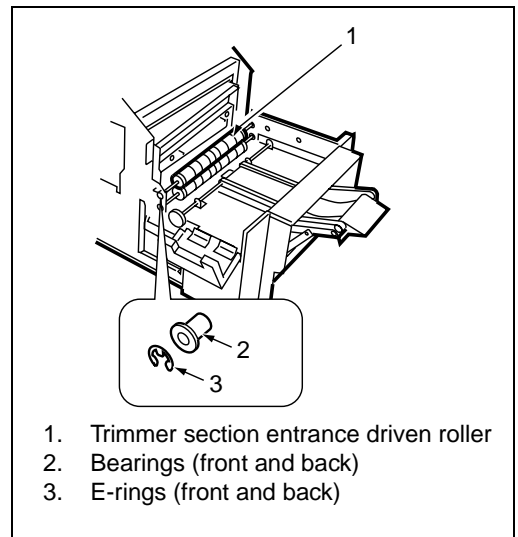
- (3) Remove the securing screw of cable clamp which holds the power cable, then unplug the the power plug.
- (4) Loosen the three lower screws, then remove the three upper screws to detach the rear cover.



- (5) Remove the three screws to detach the roller cover.
- (6) Disconnect the relay connector (CN418) and release the wiring harness from cable clamps.
- (7) Remove the two screws at the front and the two screws at the back to remove the entrance conveyance roller unit.



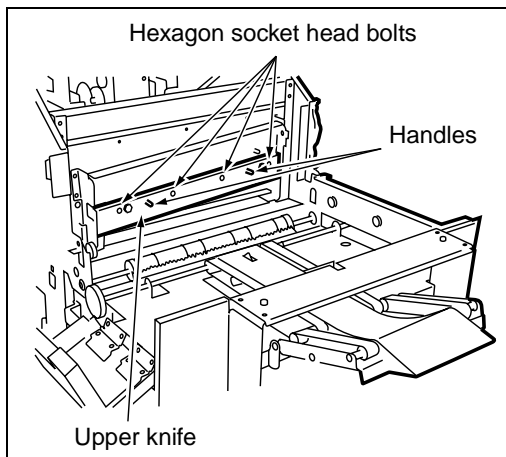
- (8) Remove the E-ring and bearing at the front and the E-ring and bearing at the back to remove the trimmer section entrance driven roller.



- (9) Remove the four hexagon socket head bolts to remove the upper knife.

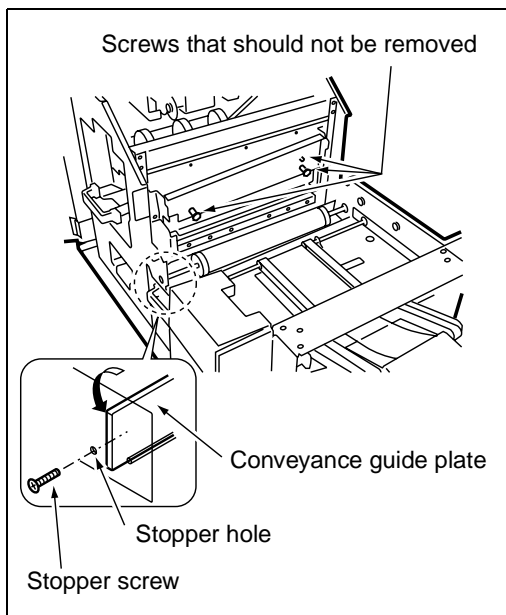
Caution1: Remove the upper knife holding the two handles.

Caution2: Take care not to drop the upper knife or chip the knife by hitting a solid component.



- (10) Turn down the conveyance guide plate. Then, insert a small shaft such as a screw (longer than M4 x 16) into the stopper hole to prevent the guide plate from returning to the original position.

Caution: Do not touch the three screws that should not be removed.

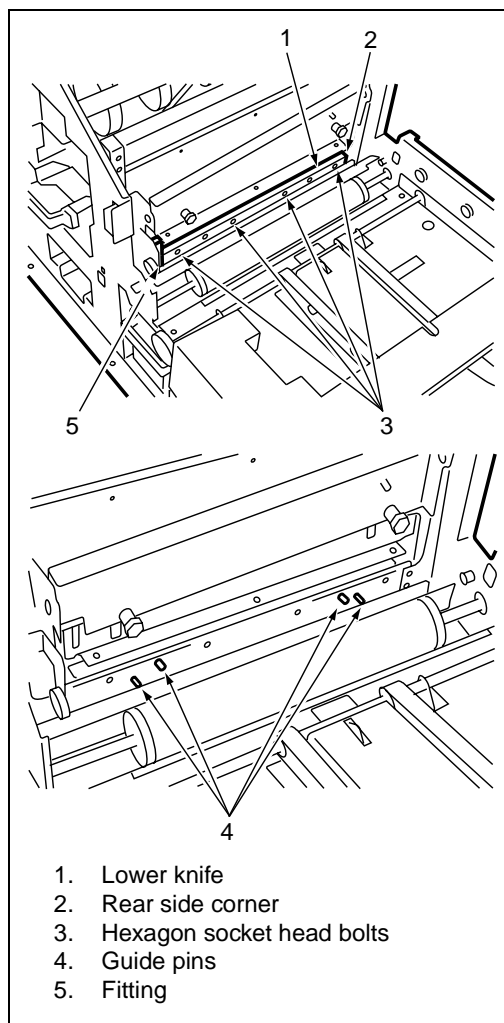


- (11) Remove the four hexagon socket head bolts to remove the lower knife.

Caution1: Remove the lower knife holding the fitting at the front and the corner at the back.

Caution2: Take care not to drop the lower knife or chip the knife by hitting a solid component.

Caution3: To install the lower knife, insert it with its holes aligned with the four guide pins.



- (12) Reinstall the above parts following the removal steps in reverse.



ADJUSTMENT

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HOW TO USE THIS SECTION

[1] Scope and Precautions

This section provides detailed information about the adjustment items and procedures. Before addressing customer complaints, perform the following checks:

1. Check whether the power supply voltage meets the specifications.
2. Check whether the power supply is properly grounded.
3. Check whether this machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that produce electrical noise).
4. Check whether the installation environment is good.
 - a. The machine must be installed in a properly ventilated area not exposed to high temperature, high humidity, and direct sunlight.
 - b. The machine must be installed on the horizontal floor.
5. Check whether original has a problem to cause the defective image.
6. Check whether the selected density value is correct.
7. Check whether the surface of the platen glass and the slit glass are clean.
8. Check whether correct paper is used for copying.
9. Check whether copying materials and parts (e.g., developer, drum, and cleaning blade) are replenished and replaced when they reach the end of the useful life.
10. Check whether toner remains.

When servicing the machine, observe the following precautions:

1. Only either side of the AC line is shut off when the SW1 (main) of this machine is turned off. Always unplug the power cord before starting the service work. If it is necessary to service the machine with the power on, take care not to be caught in the scanning gear of the exposure unit.
2. Special care should be taken when handling the fixing unit because it operates at extremely high temperatures.
3. The developing unit has a strong magnetic field. Keep watches and measuring equipment away from it.
4. Take care not to damage the drum with tools and so on.
5. Do not touch IC pins with bare hands.

ADJUSTMENTS MADE WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a customer complaint about the copy image quality is received, but also after replacing or reassembling parts.

[1] How to Read Tables

Components of the tables used in this section are as follows:

1. Mode

Adjustment mode to be selected.

[P]: Utility mode

[25]: 25 mode

[36]: 36 mode

[47]: 47 mode

2. Code

Code and copy quantity setting button used in each mode.

3. Page

Page in the "ADJUSTMENT" section.

4. Circled numbers

- ① ② Indicate that adjustments (including checks) must be made in order of precedence.

- (Circle without numeric character): Indicates that adjustments (including checks) can be made independently.

LIST OF ADJUSTMENT ITEMS

Item No.	Classification by Adjustment	Adjustment Item	Mode	Page	Drum	Developer	High Voltage unit	Write unit	Dust-proof glass	Each tray unit	Bypass paper feed unit	Paper up/down plate hoist wires	Tray pick-up solenoid	Registration roller	Registration unit	Registration Clutch	Mis-centering detection sensor	ADU unit	Read unit	Fixing unit	Memory board	EDH unit	Finisher
1	Process Adjustment	High voltage adjustment	High Voltage Auto Adjustment	2-50			O																
2		Drum Peculiarity Adjustment	Blade setting mode	2-51	①																	O	
3			Auto drum potential adjustment	2-52	②	②		②	②													O	
4			Auto maximum density adjustment (Dmax adjustment)	2-52	③	③		①	①													O	
5			Auto dot diameter adjustment	2-53	④	④																O	
6			LD1 offset adjustment	2-53	⑤	⑤																O	
7			LD2 offset adjustment	2-54	⑥	⑥		③	③													O	
8			Auto Gamma Adjustment	2-56	⑦	⑦																O	
9			Cartridge set mode	2-56	⑧	①																O	
10	Image Adjustment	Tray Adjustment		2-58						O	O											O	
11		Magnification Adjustment	Printer vertical magnification adjustment	2-59										O	O							O	
12			Printer horizontal magnification adjustment	2-60				O														O	
13			Scanner (platen) vertical adjustment	2-60															O		O		
14			Scanner (EDH) vertical magnification adjustment	2-61															O		O	O	
15		Timing Adjustment	Printer restart timing adjustment	2-62			O							O	O	O						O	
16			Printer resist loop adjustment	2-63																		O	
17			Printer pre-resist adjustment	2-63																		O	
18			Printer lead edge timing adjustment	2-64																		O	
19			Scanner restart timing adjustment	2-64															O		O		
20			EDH restart timing adjustment	2-65															O		O	O	
21			EDH resist loop adjustment	2-65																		O	
22		EDH Adjustment	EDH density adjustment	2-66															O		O	O	
23			EDH original size adjustment	2-67																		O	
24			EDH sensor sensitivity adjustment	2-67																		O	O
25			EDH skew offset adjustment	2-68																			
26		Centering Adjustment	Printer centering adjustment	2-69													O				O		
27			Scanner centering adjustment	2-69																		O	O
28			EDH centering adjustment	2-70																O	O	O	
29		Warp adjustment (Copier)	Scanner (platen) warp (main scan)	2-70																		O	
30			Scanner (platen) warp (sub-scan)	2-70																		O	
31			Scanner (EDH) warp (main scan)	2-70																		O	
32			Scanner (EDH) warp (sub-scan)	2-70																		O	
33	Finisher Adjustment	Stapling and folding stopper adjustment (FN-7 only)		2-81																		O	O
34		Folding stopper adjustment (FN-7 only)		2-81																		O	O
35		Cover sheet tray size adjustment (Cover Inserter C only)		2-82																		O	O
36		Trimmer stopper adjustment (TMG-2 only)		2-82																		O	O
37		Punch vertical position adjustment (PK-3 / ZK-2 only)		2-83																		O	O
38		Punch horizontal position adjustment (PK-3 / ZK-2 only)		2-83																		O	O
39		Punch registration loop adjustment (PK-3 / ZK-2 only)		2-84																		O	O
40		1st folding position adjustment (ZK-2 only)		2-84																		O	O
41		2nd folding position adjustment (ZK-2 only)		2-84																		O	O


Item No.	Classification by Adjustment	Adjustment Item	Mode	Page	Drum	Developer	High Voltage unit	Write unit	Dust-proof glass	Each tray unit	Bypass paper feed unit	Paper up/down plate hoist wires	Tray pick-up solenoid	Registration roller	Registration unit	Registration Clutch	Mis-centering detection sensor	ADU unit	Read unit	Fixing unit	Memory board	EDH unit	Finisher
42	Centering Adjustment			2-101																			
43	Paper up/down plate horizontal adjustment			2-105								O											
44	Skew Adjustment			2-107																			
45	Tray Spring Pressure Adjustment			2-109																			
46	Paper Feed Height (Upper Limit) Adjustment			2-111																			
47	Pick-up Release Amount Adjustment			2-110								O											
48	Alignment with drive unit			-																	O		
49	AC and DC drawer positioning			-																	O		
50	ADU gate gap adjustment			-														O					
51	EDH Mountng Position Adjustment			2-115																			
52	EDH Hinge Spring Pressure Adjustment			2-118																			
53	EDH Skew Adjustment			2-116																		O	
54	Drum count reset			2-40		O																	
55	Fixing cleaning web count reset		25	2-40																	O		
56	Developer count reset			2-40		O																	


Caution: Replacing the image control board

- When a damaged image control board is replaced, the memory board on this board must be used on the new image control board.
Only when the memory board is damaged, use a new memory board. Since the new memory board does not have adjustment data, the above adjustments are required. Before making the above adjustments, make the "47-92(output)" setting to make the new memory board effective.
- After making any adjustment, make the "47mode-96(output) setting" . After made the "47mode-96(out-put)" setting, the adjustment data is saved.
- However, the "47mode -92" and -96" settings are protected to prevent them from careless operation. In order to make "47mode -92" and -96" settings using the saved adjustment data, the protection must be disabled. For the unprotection method, contact the service section of the authorized distributor.


LCD ADJUSTMENT

[1] Control Panel Adjustment

Enter the key operator mode and select "  Touch panel adjustment" to adjust the LCD touch panel.

*If you cannot select the touch panel adjustment mode after entering the key operator mode because the touch panel is displaced absolutely, press numeric keys to select "  Touch panel adjustment".


[2] LCD Panel Contrast/Key Sound Adjustment

Enter the key operation mode and select "  LCD Panel contrast/Key sound adjustment" to adjust the contrast, backlight, and/or buzzer as desired.



SETTINGS AND ADJUSTMENTS MADE WITH THE UTILITY FUNCTION

The Utility function allows you to perform following numerical value checks using the Utility key:




1. Total counter
2. Copier counter
3. Printer counter
4. * PM counter
5. Density Shift (Auto <Text/Photo>)
6. Density Shift (Increase Contrast)
7. Density Shift (Photo)
8. Density Shift (Text)

* PM counter is only displayed when  Check key is pressed on the counter list view screen.

[1] Checking and Printing the Utility function

1. Turn ON the main switch.
2. Press the Utility key.
3. Counter list is displayed.
4. Press the  key.
5. Press the START button to print out the counter list. The Utility function is cancelled automatically.
6. If the counter list need not be displayed, press the  key.

[2] Setting up the Utility function

1. Turn ON the main switch.
2. Press the  key.
3. Press the Text/Photo ENHANCE key to set the density shift, then press the Utility key.
4. Enter a value (0-5) with a numeric key, then press the  key. The smaller the value, the darker the density.
5. Press the  key to return to the Basic screen.

MODE CHANGING MENU

[1] Mode Selection

You can select a mode from the following [Mode changing menu]: [Select mode] without turning OFF and ON the power switch.

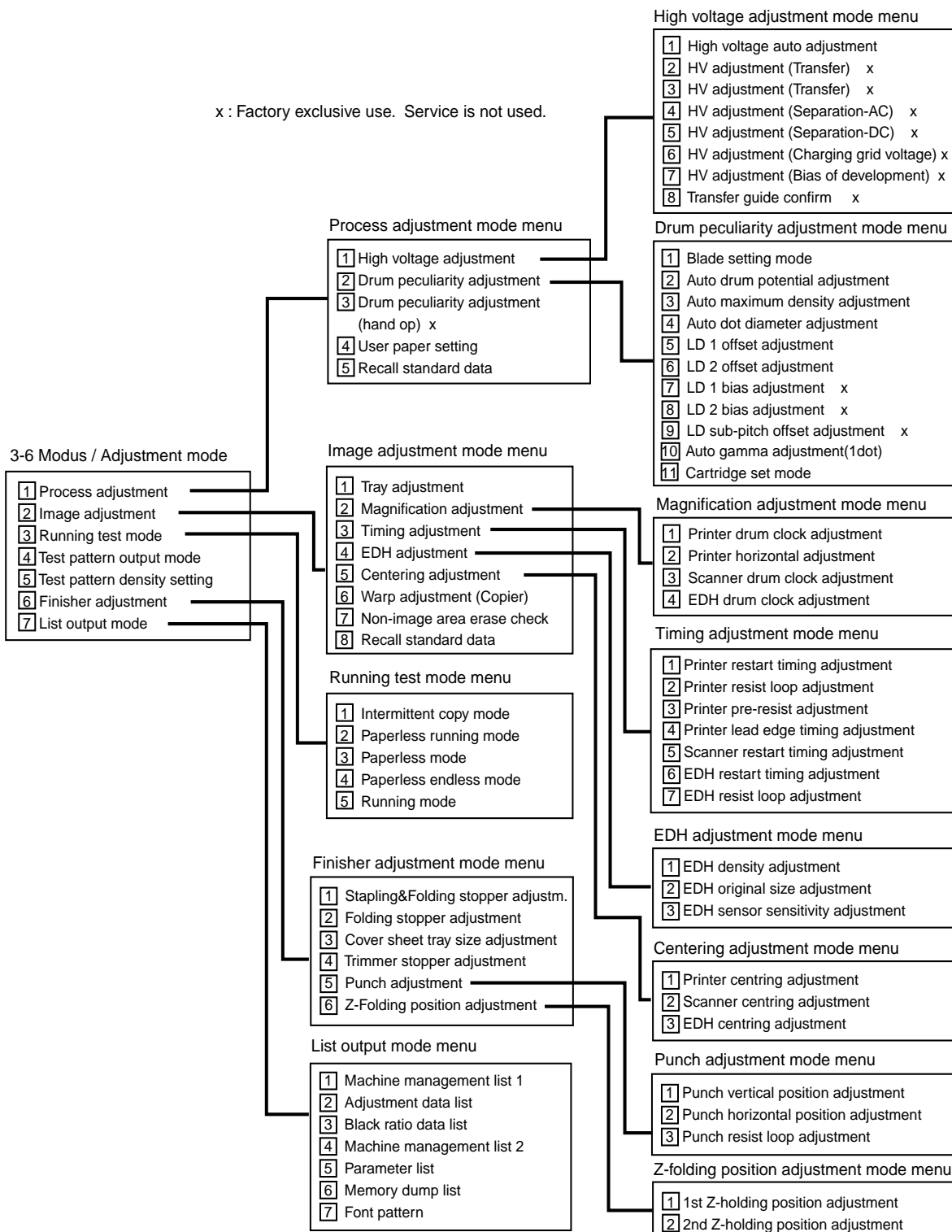
- ① Basic screen
- ② 3-6 mode
- ③ 2-5 mode
- ④ Key operation mode
- ⑤ 4-7 mode



Step	Operation
1	Turn on the main switch.
2	Press Utility key and wait until [Enter password for mode selection] message appears.
3	Enter the password 9272 and press the Start button. Note that this password is fixed and cannot be changed. The [Mode changing menu] appears.
4	Enter the number to select the desired mode.
5	To return to the [Mode changing menu] , press Utility key and wait until the menu appears again.
6	Upon completion of the adjustment, press [EXIT] key to return to the Basic screen.

[2] Display transition of 36 modes

x : Factory exclusive use. Service is not used.



[3] Display transition of 25 modes

2-5 Modus /Memory setting mode

- 1 Software SW setting
- 2 Paper size setting
- 3 PM count
- 4 Data collection
- 5 Parts counter
- 6 Password setting
- 7 Telephone number setting
- 8 M/C serial number setting
- 9 Indication of ROM version
- 10 RD mode setting
- 11 ISW
- 12 Setting date input

Collecting data menu

- | | |
|----------------------------------|------------------------------|
| 1 Total count of each paper size | 7 JAM data of time series |
| 2 Copy count of each paper size | 8 JAM count |
| 3 Print count of each paper size | 9 Count of each copy mode |
| 4 EDH count | 10 SC count |
| 5 Black ratio of each section | 11 JAM count of each section |
| 6 Black ratio ranking list | 12 SC count of each section |

Copy count of part menu

- 1 Count of special parts
- 2 Count of each parts

[4] Display transition of Key Operation modes

Key operator mode menu

- 1 System initial setting
- 2 Copier initial setting
- 3 User setting mode
- 4 E.K.C function setting
- 5 Lock / delete program memory
- 6 Paper type / Special size set
- 7 Panel contrast / Key sound adj.
- 8 Key operator data setting
- 9 Weekly timer
- 10 Control panel adjustment
- 11 Tray auto select setting
- 12 Energy saver setting
- 13 Memory switch setting
- 14 Machine management list print
- 15 * Not use Minolta!
- 16 Side 2 lens adjustment
- 17 Finisher adjustment
- 18 HDD management setting
- 19 Scanner transmission setting
- 20 Non-image area erase setting

*1 Name of system
E.K.C : Exsept UAS area
E.C.M : USA area only

System initial setting menu

- 1 Date & Time setting
- 2 Language select setting
- 3 IP adress setting / Tandem
- 4 E-mail transmission setting

User setting mode menu

- 1 User density level 1 setting
- 2 User density level 2 setting
- 3 User lens mode ratio setting

Enter E.K.C Master code: *1

- 1 E.K.C data edit
- 2 E.K.C all count reset
- 3 E.K.C function setting

Weekly timer setting menu

- 1 Weekly timer ON/OFF setting
- 2 Timer setting
- 3 Timer action ON/OFF setting
- 4 Lunch hour off setting
- 5 Timer interrupt password set

Management list print mode menu

- 1 Program memory list
- 2 User management list
- 3 E.K.C. management list
- 4 Font pattern list

Finisher adjustment mode menu

- 1 Stapling & Folding stopper adjust.
- 2 Folding stopper adjustment
- 3 Trimmer stopper adjustment
- 4 Punch adjustment
- 5 Z-Folding position adjustment
- 6 Three-Folding position adjustment
- 7 2-Positions staole pitch adjustment

Memory switch menu

- 1 Panel reset timer
- 2 Panel reset key function
- 3 EDH-Original effect
- 4 Program memory auto recall -30-
- 5 Finisher mode by Full-Auto
- 6 Initial by Key Counter insert
- 7 Erasure outside area of original
- 8 EDH frame erasure selection
- 9 Automatic tray switching
- 10 Platen APS
- 11 EDH APS
- 12 Platen AMS
- 13 EDH AMS
- 14 Select tray when APS cancel
- 15 Platen original size detect
- 16 EDH original size detect
- 17 Platen original size detect (SMALL)
- 18 Rotation
- 19 Staple mode reset function
- 20 Job offset operating
- 21 Continuation print
- 22 SDF auto start
- 23 Key click sound
- 24 1 Shot indication time
- 25 Power save screen
- 26 Start Key latch function
- 27 Stop Key function
- 28 Auto select of booklet copy
- 29 E.K.C. Password
- 30 Arrow key change [Image shift]
- 31 Exit direction of 1 sheet
- 32 An interruption suspended way
- 33 E.K.C. password input timing
- 34 Key click sound (No paper/ Jam)
- 35 Reserve copy function
- 36 Scan stop by pull out tray
- 37 Change page no. Pos. (booklet)
- 38 Trimmer (Std./ Non Std size)
- 39 Timer which prohibits print
- 40 Bookmark fancement
- 41 Delete of overlay image
- 42 Orig. direction/binding mode
- 43 Image stored conti. (SRV)
- 44 Image recalled conti. (SRV)
- 45 Exit direction

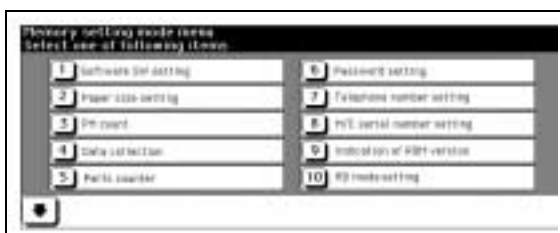
25 MODE

[1] Setting the 25 Mode

This machine has an adjustment mode called the "25 Mode". Select this mode to rewrite data in the non-volatile memory or make various settings.

1. Turn OFF the main switch.
2. While pressing the copy quantity setting buttons 2 and 5, turn ON the main switch.
The 25 Mode Menu screen will appear.
Now the machine is in the 25 mode, disabling normal copy operations.

[25 Mode Menu. Screen]



3. Press the numeric button of the desired setting item.
The associated setting screen will appear.
4. Enter data in the setting screen.
5. Turning OFF the main switch cancels the 25 mode.
6. New data will take effect after restart.

[2] Setting Software DIP Switches

1. Procedure

Bring up the Software DIP SW Setting screen and set software DIP switches.

Step	Operation
1	Enter the 25 mode.
2	[Memory setting mode menu] Select " 1 Software DIP SW setting".
3	Software switch setting mode 05 Select a DIP switch number. Use the ▲ or ▼ key at the left. To use numeric keys, invert the DIP switch number at the left before entering a DIP switch number.
4	Select a bit number of the selected DIP switch. Use the ▲ or ▼ key at the right. To use numeric keys, invert the bit number at the upper center before entering a DIP switch number.
5	Select ON (=1), or OFF (=0) of the switch. Use the ON or OFF key. ON : Sets 1. OFF : Sets 0.
6	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

< List of Software Switches >

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW 1	0	Condition for stopping copying after indication of toner supply	* 1	* 1	1	1	1
	1				0	0	0
	2	Method for stopping copying after indication of toner supply	* 2	* 2	1	1	1
	3				0	0	0
	4	Inhibition of copying when PM count is reached	Not Inhibited	Inhibited	0	0	0
	5	Number of copies made before inhibition of copying when PM count is reached	* 3	* 3	0	0	0
	6				0	0	0
DIPSW2	7				0	0	0
	0	Hard disk connection	Disconnected	Connected	0	0	0
	1	Electrode cleaning cycle (when power is turned ON)	* 4	* 4	0	0	0
	2				0	0	0
	3				0	0	0
	4	Electrode cleaning cycle (after power is turned ON)	* 5	* 5	0	0	0
	5				0	0	0
DIPSW3	6	Blade automatic switching cycle	* 6	* 6	0	0	0
	7				0	0	0
	0	Regular toner supply amount	* 7	* 7	0	0	0
	1	SC latch	Unlatched	Latched	0	0	0
	2	25, 36, 47 mode password request (password: 9272)	Not requested	Requested	0	0	0
	3	Charging corona unit cleaning function	ON	OFF	0	0	0
	4	Transfer /separation corona unit cleaning function	ON	OFF	0	0	0
DIPSW4	5	Movement of blade to transportation	Disabled	Enabled	0	0	0
	6	47 mode 15-01 data collection clearing	Disabled	Enabled	0	0	0
	7	-	-	-	0	0	0
	0	ADF automatic skew adjustment	Enabled	Disabled	0	0	0
	1	Inhibition of thick paper / double sided copy paper mode	Disabled	Enabled	0	0	0
	2	Destination selection	* 8	* 8	0	1	0
	3				0	0	1
DIPSW5	4	Key counter removal recovery	Disabled	Enabled	0	0	0
	5	Inhibition of magnified APS	Enabled	Disabled	0	1	0
	6	Fixed magnification rate setting change in key operator mode	Enabled	Disabled	1	0	0
	7	A3 (11x17) counting method	Incremented by 1	Incremented by 2	0	0	0
	0	Toner concentration threshold	* 9	* 9	0	0	0
	1				0	0	0
	2	-	-	-	0	0	0
DIPSW5	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	2 dot PWM density in photo mode	* 10	* 10	0	0	0
	7				0	0	0

Note1:

This bit is used to keep the cleaning blade off the drum to protect the drum and cleaning blade during transportation of the main body.

To keep the blade off the drum, set this DIP switch to 1, open the front door to turn OFF the interlock, and start up the 47 mode. The blade switching operation is performed at this time. If blade 1 is used, do not forget blade charge and 36 mode blade set mode at reinstallation. This DIPSW will be reset to 0 automatically.

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW 6	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	Transfer/separation output for thick paper	* 11	* 11	0	0	0
	4	-	-	-	0	0	0
	5	Transfer/separation output for thin paper	* 12	* 12	0	0	0
	6	-	-	-	0	0	0
DIPSW 7	7	Auto drum potential adjustment (Note 2)	Enabled	Disabled	0	0	0
	0	Deveolping potential control for image area	* 13	* 13	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
DIPSW8	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
	2	Fixing roller initial rotation	* 14	* 14	0	0	0
	3	-	-	-	1	1	1
	4	Fixing roller initial rotation time setting	* 15	* 15	0	1	1
DIPSW 9	5	-	-	-	0	0	0
	6	A3(11 × 17) PM counter switch	1 count	2 count	0	0	0
	7	Store on hard disk	Enable	Disable	0	0	0
	0	Operation at key counter removal (copy)	Same as stop key	Immediate stop (JAM)	0	0	0
	1	Operation at key counter removal (Print)	Ignored	Same as DIPSW9-0	0	0	0
	2	Message switching	* 16	* 16	0	0	0
	3	-	-	-	0	0	0
DIPSW 10	4	Copy count limit	* 17	* 17	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
	0	Page memory allocation at power on Ditto.	* 18	* 18	0	0	0
	1	-	-	-	0	0	0
	2	Page memory allocation at job starts	* 19	* 19	0	0	0
DIPSW 11	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
DIPSW 11	2	-	-	-	0	0	0
	3	SC/E code screen switchover	Switched	Not switched (All are F codes)	0	0	0
	4	Selection of filter for jagged edges on slanting lines	Not selected	Selected	0	0	0
	5	Gradation switchover in Photo mode	2bitED-2dot PWM	1bitED-2dot PWM	0	0	0
	6	-	-	-	0	0	0
	7	JAM indication screen type	Without Jam code	With Jam code	0	0	0

Note 2: This bit determines whether drum potential adjustment is to be made using a drum potential sensor.

This setting is used to check whether an image problem has been caused by a faulty drum potential sensor.

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW 12	0	Black stripe creation interval	Not performed	Every 5 copies	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	Printer automatic centering correction	Enable	Disable	0	0	0
	4	High voltage output in 36/47 mode	Not output	Output	1	1	1
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
DIPSW 13	0	Size detection 1	A5	5.5 x 8.5	0	1	0
	1	Size detection 2	A4R	8.5 x 11R	0	1	0
	2	Size detection 3	8.5 x 14	F4	0	0	1
	3	Size detection 4	* 20	* 20	0	0	0
	4				0	1	0
	5	F4 size detection	* 21	* 21	0	0	0
	6				0	0	0
	7	-	-	-	0	0	0
DIPSW14	0	Size detection 5 (main body)	B4 : 11 x 17/ B5 : 8.5 x 11	8K/16K	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	Size detection 5 (by-pass feed)	B4 : 11 x 17/ B5 : 8.5 x 11	8K/16K	0	0	0
	4	Size detection 5 (platen)	B4 : 11 x 17/ B5 : 8.5 x 11	8K/16K	0	0	0
	5	Size detection 5 (ADF)	B4 : 11 x 17/ B5 : 8.5 x 11	8K/16K	0	0	0
	6	Size detection selection (PI)	B4 : 11 x 17/ B5 : 8.5 x 11	8K/16K	0	0	0
	7	-	-	-	0	0	0
DIPSW15	0	-	-	-	0	0	0
	1	Maximum number of sheets that can be stapled	* 22	* 22	0	0	0
	2				0	0	0
	3	FNS alarm stop SW	* 23	* 23	0	0	0
	4				0	0	0
	5	RD mode connection recognition	Disconnect	Connect	0	0	0
	6	Dmax. value in printer mode	1.43	1.35	0	0	0
	7	-	-	-	0	0	0
DIPSW16	0	-	-	-	0	0	0
	1	Multi-job	Reservation enabled	Reservation disabled	0	0	0
	2	-	-	-	0	0	0
	3	C(K) counting in printer mode	Not counted	Counted	0	0	0
	4	TC start date indication (P mode)	Indicated	Not indicated	0	0	0
	5	Non-original area erasure mode judgement level	* 24	* 24	0	0	0
	6				0	0	0
	7	-	-	-	0	0	0
DIPSW17	0	WT summer time setting	* 25	* 25	0	0	0
	1				1	1	1
	2				1	1	1
	3				0	0	0
	4	Density selection for scanning tab paper	* 26	* 26	0	0	0
	5				0	0	0
	6				0	0	0
	7				-	-	-

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW18	0	Tray 1's faulty part isolation	Normal	Unavailable	0	0	0
	1	Tray 2's faulty part isolation	Normal	Unavailable	0	0	0
	2	Tray 3's faulty part isolation	Normal	Unavailable	0	0	0
	3	Tray 4's (LCT's) faulty part isolation	Normal	Unavailable	0	0	0
	4	ADF faulty part isolation	Normal	Unavailable	0	0	0
	5	Folding, stapling and folding, trimmer faulty part isolation	Normal	Unavailable	0	0	0
	6	PI faulty part isolation	Normal	Unavailable	0	0	0
	7	Hard disk faulty part isolation	Normal	Unavailable	0	0	0
DIPSW 19	0	-	-	-	0	0	0
	1	Fixing temperature setting switching	* 27	* 27	0	0	0
	2				0	0	0
	3				0	0	0
	4	PZ faulty part isolation	Normal	Unavailable	0	0	0
	5	PK faulty part isolation	Normal	Unavailable	0	0	0
	6	Selection of a default resolution for IP scanner	* 28	* 28	0	0	0
	7				0	0	0
DIPSW20	0	Group stapling	Disabled	Enabled	0	0	0
	1	Original size scanning with shift function (Note1)	Normal	Original priority	0	0	0
	2	Stamp page number switching	Based on original	Based on transfer paper	0	0	0
	3	Keyboard layout	ABC layout	QWERTY layout	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
DIPSW21	0	Mixed sized print stapling inhibition (Print)	Enabled (real-time output)	Disabled (batch processing)	0	0	0
	1	LCT size setting in key operator mode	Disabled	Enabled	0	0	0
	2	Original count display	Displayed	Not displayed	0	0	0
	3	-	-	-	0	0	0
	4	Output on Tandem	Realtime	Batch	0	0	0
	5	Allocation recovery on Tandem	Enabled	Disabled	0	0	0
	6	Special paper APS response	Disabled	Enabled (All except Thick 2 papers and Thick 3 papers)	0	0	0
	7	-					

Note1:When "Normal" is selected, the original size is compared with the copy paper size and the smaller one is assumed to be the image area size. When "Original priority" is selected, the original size is compared assumed to be the image area size only when the image shift mode is selected.

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW22	0	IP address setting	Disabled	Enabled	0(1)	1	1
	1	Number of punched holes	* 29	* 29	0	1	0
	2				0	0	1
	3	Standard position of image on Nonstandard size original	User selected	APS of ADF	0	0	0
	4	Function of Power save button	Enabled	Disabled	0	0	0
	5	-	-	-	0	0	0
	6	Operation on staple empty of FNS	Requesting staple supply	Selectable staple supply or without stapling	0	0	0
	7	-	-	-	0	0	0
DIPSW23	0	-	-	-	0	0	0
	1	Output operation when EKC user ID unmatching	Enabled (counted by other user account)	Disabled (registered non-output list)	0	0	0
	2	Image density selection (toner density selection of developer)	* 30	* 30	0	0	0
	3				0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	Job memory registration of the special paper setting on the bypass tray	Disabled	Enabled	0	0	0
	7	Face-up ejection of the thick paper 2 to sub-tray (Print)	Disabled	Enabled	0	0	0
DIPSW24	0	HDD JOB recall operation	Password	Password + file name	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	Maximum number of sheets with z-folding (main tray)	* 31	* 31	0	0	0
	5				1	1	1
	6	Maximum number of sheets with z-folding + stapling (main tray)	* 32	* 32	0	0	0
	7				0	0	0
DIPSW25	0	-	-	-	0	0	0
	1	Maximum number of sheets with Booklet Mode	20 sheet	16 sheet	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
DIPSW28	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	Timing and centring adjustment in key operator mode	Disabled	Enabled	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW29	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
DIPSW30	0	-	-	-	0	0	0
	1	25 mode collection data 5-11 for checking	Display restriction	No display restriction	1	1	1
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	Passwords to save/access hard disk JOB	Not displayed	Displayed	0	0	0
DIPSW31	0	-	-	-	0	0	0
	1	-	-	-	0	0	0
	2	-	-	-	0	0	0
	3	-	-	-	0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0
DIPSW33	0	Normal paper process control switchover	* 33	* 33	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Recycled paper process control switchover	* 33	* 33	0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0
DIPSW34	0	Colored paper process control switchover	* 33	* 33	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Special paper process control switchover	* 33	* 33	0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0
DIPSW35	0	High-quality paper process control switchover	* 33	* 33	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Exclusive paper A paper process control switchover	* 33	* 33	0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0

DIPSW No.	Bit	Function	0	1	Initial Value		
					Japan	Inch	Metric
DIPSW36	0	Exclusive paper B paper process control switchover	* 33	* 33	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Exclusive paper C paper process control switchover	* 33	* 33	0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0
DIPSW37	0	Exclusive paper D paper process control switchover	* 33	* 33	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	-	-	-	0	0	0
	5	-	-	-	0	0	0
	6	-	-	-	0	0	0
	7	-	-	-	0	0	0

- *1 Condition for stopping copying after indication of toner supply request

Mode	1-1	1-0
Stops after printing 1,500 copies	0	0
Stops after printing 3,000 copies	0	1
Stops after printing 4,000 copies	1	0
Stops after printing 5,000 copies	1	1

- *2 Method for stopping copying after indication of toner supply request

Mode	1-3	1-2
Stops after ejecting the paper remaining in the machine	0	0
Stops after printing specified number of copies	0	1
Stops at the end of the current job	1	0
Does not stop	1	1

- *3 Number of copies made before inhibition of copying when PM count is reached

Mode	1-7	1-6	1-5
1,000 copies	0	0	0
2,000 copies	0	0	1
3,000 copies	0	1	0
4,000 copies	0	1	1
5,000 copies	1	0	0
1,000 copies	1	0	1
1,000 copies	1	1	0
1,000 copies	1	1	1

- *4 Electrode cleaning cycle (fixing temperature is 50°C or lower when power is turned ON)

Mode	2-3	2-2	2-1
When power is turned ON	0	0	0
5,000 copies	0	0	1
10,000 copies	0	1	0
15,000 copies	0	1	1
20,000 copies	1	0	0
25,000 copies	1	0	1
30,000 copies	1	1	0
Not cleaned	1	1	1

- *5 Electrode cleaning cycle (after power is turned ON)

Mode	2-5	2-4
10,000 copies	0	0
30,000 copies	0	1
40,000 copies	1	0
50,000 copies	1	1

- *6 Blade automatic switching cycle

Mode	2-7	2-6
250,000 copies	0	0
300,000 copies	0	1
400,000 copies	1	0
500,000 copies	1	1

- *7 Regular toner supply amount

When copying the original which black ratio is low (less than 1 %), gray background image is caused because the toner density of developer increases. In this case, changing this bit to 1, decreases the amount of toner supplied regularly, thus preventing gray background image.

Note: When copying the original which black ratio is normal, changing this bit to 1 causes the image to be lighter.

Mode	3-0
Standard	0
Decrease regular toner supply amount	1

- *8 Destination selection

Mode	4-3	4-2
Japan	0	0
Inch area	0	1
Metric area	1	0

*9 Toner concentration threshold

This bit sets the read level of the toner concentration patch formed on the drum to determine the toner concentration. The setting can be made by shifting the threshold of black color to the positive or negative side.

- Standard -3: The image becomes darker.
- Standard +3: The image becomes lighter.
- Standard +5: The image becomes far lighter.

Mode	5-1	5-0
Standard	0	0
Standard -3	0	1
Standard +3	1	0
Standard +5	1	1

*10 2 dot PWM table in photo mode

Mode	4-3	4-2
Standard	0	0
Light	0	1
Dark	1	0
Not use	1	1

*11 Transfer/separation corona unit output for thick paper

This bit is used when "Thick 1", "Thick 2" or "Tab paper" is selected for "Paper type/special size setting" in the key operator mode.

When "No specification" is selected, data for "Thick 1: 170 g/m²" or "Thick 2: 200 g/m²" is used (the data for "Thick 2" is also used for tab paper). When other than "No specification" is selected, the selected output data is used for both "Thick 1" and "Thick 2."

When this bit cannot be used with "Thick 2" selected, "Thick 3" can be selected in the key operator mode.

(Changing DIP SW is not required.)

Mode	6-4	6-3
No specification	0	0
200 g/m ² paper	0	1
170 g/m ² paper	1	0
Postcard	1	1

*12 Transfer/separation corona unit output for thin paper

This bit is used when "Thin" is selected for "Paper type/special size setting" in the key operator mode.

When "No specification" is selected, the output data by destination (**Japan**: 50 g/m² paper, **Inch area**: 16lb, paper, **Metric area**: 60 g/m² paper) is used.

Mode	6-6	6-5
No specification	0	0
50 g/m ² paper	0	1
60 g/m ² paper	1	0
16 lb paper	1	1

*13 Developing potential control of image area

Change the charging potential and developing bias to decrease the developing potential of image area.

This bit is used to gain a lighter image for such use as printing books..

Mode	7-1	7-0
Standard	0	0
-100 V	0	1
-150 V	1	0
-200 V (light)	1	1

***14 Fixing roller initial rotation**

Fixing may be insufficient in the morning if the temperature of the place where the machine is installed is low. To prevent this, increase the warm-up time (fixing roller initial rotation time) to allow the fixing lower roller to be warmed up to the normal temperature. This bit specifies the condition(s) under which initial rotation of the fixing roller is required.

- Low temperature:
Initial rotation of the fixing roller is carried out only under the low temperature condition.
- Low and normal temperatures:
Initial rotation of the fixing roller is carried out under low and normal temperature conditions.
- Low, normal, and high temperatures:
Initial rotation of the fixing roller is carried out under low, normal, and high temperature conditions

	Mode	8-3	8-2
Japan, Inch area	Low temperature	0	0
Metric area	Low and normal temperature	0	1
For all destination	Low, normal, and high temperatures	1	0
	No rotation	1	1

***15 Fixing roller initial rotation time setting**

This bit sets the maximum time of initial rotation of the fixing roller. When 0 second is specified, initial rotation of the fixing roller is not carried out.

Mode	8-5	8-4
60 seconds	0	0
30 seconds	0	1
15 seconds	1	0
0 seconds	1	1

***16 Message switching**

Mode	9-3	9-2
Please insert key counter.	0	0
Please insert copy card.	0	1
Please insert coin.	1	0
Please insert key counter.	1	1

***17 Copy count limit**

Mode	9-7	9-6	9-5	9-4
No limit	0	0	0	0
1 copy	0	0	0	1
3 copies	0	0	1	0
5 copies	0	0	1	1
9 copies	0	1	0	0
10 copies	0	1	0	1
20 copies	0	1	1	0
30 copies	0	1	1	1
50 copies	1	0	0	0
99 copies	1	0	0	1
No limit	1	0	1	0
No limit	1	0	1	1
No limit	1	1	0	0
No limit	1	1	0	1
No limit	1	1	1	0
No limit	1	1	1	1

***18 Page memory allocation when power on**

Mode	10-1	10-0
No allocation	0	0
32 MB	0	1
64 MB	1	0

***19 Page memory allocation at job start**

When this mode is selected and the copy mode use the page memory, the page memory is allocated at the start of a job so that the data that has been read is output normally at occurrence of a memory overflow.

The page memory size is determined by the resolution and the number of gradations as shown in the table given below.

1 bit ED	18 MB (A3 x 2)
2 bit ED	36 MB (A3 x 2)

Mode	10-2
No allocation	0
Allocated	1

If DIP switches 10-0 and 10-1 are set to allocate the page memory, they take priority over this mode.

*20 Size detection 4

Destination	Mode	13-4	13-3
Metric series	A5R	0	0
	B6R	0	1
Inch series	5.5 x 8.5R	1	0

*21 F4 size detection

Mode	13-6	13-5
8 x 13	0	0
8.25 x 13	0	1
8.125 x 13.25	1	0
8.5 x 13	1	1

*22 Maximum number of sheets that can be stapled
Except for FN-115

Mode	15-2	15-1
50 sheets	0	0
45 sheets	0	1
40 sheets	1	0
35 sheets	1	1

FN-115 (When the length in the paper feed direction is 400mm or more, the maximum number of sheets to be stapled is the same when machines other than FN-115 are used.)

*23 FNS alarm stop SW

Mode	15-4	15-3
Stop immediately after detection	0	0
Stop at end of copy after detection	0	1
No alarm stop	1	0
No alarm stop	1	1

*24 Selection of area to be erased in non-original area automatic erasure

These bits are used to make a setting associated with the non-original automatic erasure mode (application function).

Mode	16-6	16-5
Standard	0	0
Dark original	0	1
Coping with light interference	1	0

*25 WT summer time setting

Mode	17-3	17-2	17-1	17-0
0 minute	0	0	0	0
10 minutes	0	0	0	1
20 minutes	0	0	1	0
30 minutes	0	0	1	1
40 minutes	0	1	0	0
50 minutes	0	1	0	1
60 minutes	0	1	1	0
70 minutes	0	1	1	1
80 minutes	1	0	0	0
90 minutes	1	0	0	1
100 minutes	1	0	1	0
110 minutes	1	0	1	1
120 minutes	1	1	0	0
130 minutes	1	1	0	1
140 minutes	1	1	1	0
150 minutes	1	1	1	1

*26 Density selection for scanning tab paper

The higher the brightness level, the higher the density.

Mode	17-6	17-5	17-4
80 (brightness level)	0	0	0
40	0	0	1
60	0	1	0
100	0	1	1
120	1	0	0
160	1	0	1
200	1	1	0
255(not clipped)	1	1	1

***27 Fixing temperature setting switch over**

This bit is used to change the fixing temperature when fixing is insufficient or paper curl is curled largely.

This setting is effective only for plain paper. It is not reflected in thick paper, thin paper and low power mode.

- Standard: Standard setting.
- Standard+5°C to +15°C:
Set when fixing is insufficient.
- Standard-5°C to -20°C:
Set when paper is curled largely.

Mode	19-3	19-2	19-1
Standard	0	0	0
Standard+5 °C	0	0	1
Standard+10 °C	0	1	0
Standard+15 °C	0	1	1
Standard-5 °C	1	0	0
Standard-10 °C	1	0	1
Standard-15 °C	1	1	0
Standard-20 °C	1	1	1

***28 Selection of a default resolution for IP scanner**

Mode	19-7	19-6
400dpi	0	0
600dpi	0	1
200dpi	1	0
300dpi	1	1

***29 Number of punched holes**

Mode	22-2	22-1
2 holes (Japan)	0	0
3 holes (Inch area)	0	1
4 holes (Metric area)	1	0

***30 Toner density selection of developer**

If gray background image is caused by the increase the toner density of developer change the developing sleeve rotation times with this switch to prevent gray background image.

Mode	23-3	23-2
Toner standard density	0	0
Reducing appx. 0.5 %	0	1
Reducing appx. 1.0 %	1	0
Reducing appx. 1.5 %	1	1

***31 Maximum number of sheets with Z-folding (main tray)**

Mode	24-5	24-4
Up to 50 sheets	0	0
Up to 40 sheets	0	1
Up to 30 sheets	1	0
Up to 20 sheets	1	1

***32 Maximum number of sheets with Z-folding + staple**

Mode	24-7	24-6
Up to 5 sheets	0	0
Up to 8 sheets	0	1
Up to 10 sheets	1	0
Up to 3 sheets	1	1

*33 Paper type process control switchover

1. Setting method

This bit is used when "-----", "Normal," "Recycled," "Color," "Special," "HIGH Q," "Exclusive paper A," "Exclusive paper B," "Exclusive paper C," or "Exclusive paper D" is selected for "Paper type/special size setting" in the key perator mode.

When "User paper" is selected with this bit, the transfer/separation corona unit output for the "user paper setting" made in the 36 mode is applied. When "No specification (-----)" is selected, the output data by destination and paper size (Japan:64 g/m² plain paper, Inch area:20 lb plain paper, Metric area:80 g/m² plain paper) is used.

Key operator selecting key	Plain paper	33-3	33-2	33-1	33-0
	Recycled paper	33-7	33-6	33-5	33-4
	Colored paper	34-3	34-2	34-1	34-0
	Special paper	34-7	34-6	34-5	34-4
	High-quality paper	35-3	35-2	35-1	35-0
	Exclusive paper A	35-7	35-6	35-5	35-4
	Exclusive paper B	36-3	36-2	36-1	36-0
	Exclusive paper C	36-7	36-6	36-5	36-4
	Exclusive paper D	37-3	37-2	37-1	37-0
Transfer/separation table	No specification (default)	0	0	0	0
	Standard paper 64 g/m ²	0	0	0	1
	Standard paper 20 lb	0	0	1	0
	Standard paper 80 g/m ²	0	0	1	1
	Thick paper	0	1	0	0
	Thin paper	0	1	0	1
	High-quality paper for printing press 64 g/m ²	0	1	1	0
	High-quality paper for printing press 81.4 g/m ²	0	1	1	1
	High-quality paper for printing press 127 g/m ²	1	0	0	0
	High-quality paper for printing books 64 g/m ² and Coated paper 64 g/m ²	1	0	0	1
	High-quality paper for printing books 81.4 g/m ² and Coated paper 81.4 g/m ²	1	0	1	0
	Reserve 1	1	0	1	1
	Reserve 2	1	1	0	0
	PPC paper 2	1	1	0	1
	Low-strength paper	1	1	1	0
	User paper	1	1	1	1

2. Paper type

(1) High-quality paper for printing press

This paper has only little difference in paper quality between the front and the back side, and has much strength.

(2) Paper for printing books

This paper has lower paper density than high-quality paper. Cream color is often used as a suitable color for books.

(3) Coated paper

This paper is high and standard-quality paper, to one side of which 10 grams/m² of clay is applied.

(4) Low-strength paper







In spite of being 20 lb plain paper (inch area), the paper strength is lower than normal plain paper, and winds itself around the drum easily.

[3] Setting the Paper Size









When the LCT paper type is changed, it must be stored in the main unit. This setting is effective when an optional LCT is added.

Select a paper size among standard, non-standard paper sizes. After selecting a tray size, specify a paper size.

1. Setting the standard size

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select "  Paper size setting".
3	[Paper size setting mode Screen] Press the  key.
4	Press the  or  button to select a paper size.
5	Press the  key to finish setting. To cancel the new setting, press the  key, Pressing either key will display the 25 Mode Menu screen again.

2. Setting the non-standard size

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select "  Tray Size Setting."
3	[Paper size setting mode Screen] Press the  key.
4	Press the key for specifying the main (vertical) scanning direction to display it in reverse video.
5	Press the  or  key or numeric keys to enter the size in the main (vertical) scanning direction. Max. 314 mm
6	Press the key for specifying the sub (horizontal) scanning direction to display it in reverse.
7	Press the  or  key or numeric keys to enter the size in the sub (horizontal) scanning direction. Max. 223 mm (A4LCT), 459 mm (A3LCT)
8	Press the  key to finish setting. To cancel the new setting, press the  key. Pressing either key will display the 25 Mode Menu. Screen again.

3. Setting the wide paper

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select " 2 Paper size setting."
3	[Paper size setting mode Screen] Press the Wide size paper key.
4	[Paper size selecting Screen] Press the ▲ or ▼ key to select a wide paper size.
5	Press the Input size key.
6	[Paper size input Screen] Press the key for specifying the main (vertical) scanning direction to display it in reverse.
7	Press the ▲ or ▼ key or numeric keys to enter the size in the main (vertical) scanning direction. Max. 314 mm
8	Press the button for specifying the sub (horizontal) scanning direction to highlight it.
9	Press the ▲ or ▼ key or numeric keys to enter the size in the sub (horizontal) scanning direction. Max. 223 mm (A4LCT), 459 mm (A3LCT)
10	Press the OK key to finish setting. To cancel the new setting, press the CANCEL key. Pressing either key will display the 25 Mode Menu. Screen again.

Reference 1:

Each time the current tray size is changed on this screen, the new setting will be written into the non-volatile memory.

[4] PM Count Resetting

Care should be taken not to reset the PM count by mistake.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select " 3 PM count".
3	[PM count/cycle Screen] Press the COUNT RESET key.
4	[Reset Confirmation Screen] Press the YES key. The PM count is reset and the start date is input automatically. Pressing the NO key closes the Reset Confirmation screen at once.
5	Press the OK key to finish setting. To cancel the new setting, press the CANCEL key. Pressing either key will display the 25 Mode Menu. Screen again.

[5] Setting the PM Cycle

This function allows you to change the PM cycle.

Caution: The PM cycle is factory-set. Use this function to change the factory-set PM cycle.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select " [3] PM count".
3	[PM count/cycle Screen] Press the [PM Cycle Setting] key.
4	After making sure that three digits of the cycle value are displayed in reverse video, enter a desired cycle value using numeric keys. Only the three digits of the cycle value can be entered. The entered digits will be shifted to the left one after another.
5	Press the [OK] key to finish setting. To cancel the new setting, press the [CANCEL] key. Pressing either key will display the 25 Mode Menu. Screen again.

[6] Collecting Data

This function allows you to view various data retained by the machine.



Reference: The above data can also be viewed using the data collection function of the.

1. Data that can be Viewed





No.	Data Type	Pre-operation
1	Total count of each paper size	
2	Copy count of each paper size	
3	Print count of each paper size	
4	EDH count	
5	Black ratio of each section	
6	Black ratio ranking list	
7	JAM data of time series	Enter the 25 mode, select " [1] Software DIPSW Setting", and set bit 1 of address 30-1 to 1. (Note 1)
8	JAM count	
9	Count of each copy mode	
10	SC count	
11	JAM count of each section	
12	SC count of each section	

Note: When bit 1 of DIP switch 30 is set to 0, only collected data 1 to collected data 6 can be viewed.

2. Viewing Collecting Data No.1 to No.6

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select " 4 Data collection".
3	[Collecting data menu Screen] Select the collecting data you want to view by pressing one of numeric keys 1 to 6 .
4	[Individual data view Screen] View the selected data by scrolling the screen using the  and  keys.
5	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

3. Viewing Collecting Data No.7 to No.12

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select " 1 Software DIP SW setting".
3	[Software DIP SW Setting Screen] Set bit 1 of DIP switch 30-1 to 1.
4	Press the PREVIOUS key to return to the 25 Mode Menu. Screen.
5	[25 Mode Menu. Screen] Select " 4 Data Collection".
6	[Collecting data menu Screen] Select the collected data you want to view by pressing one of numeric keys 7 to 12 . To select the key 11 or later press the  key. If the  key is pressed with key 11 displayed, the Collected Data Selection screen containing keys 1 to 12 appears again.
7	[Individual data view Screen] View the selected data by scrolling the screen using the  and  keys. (Note)
8	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

Note: On the Individual Data View screen showing the JAM count of each section (collected data **11**) or SC count of each section (collected data **12**), the **COUNT RESET** key appears. Pressing the **COUNT RESET** key resets the selected data count.

4. Details on Display Data

(1) Collecting data No.1 to No.3: Total / copy / print counts of each paper size

NO	Destination			Maximum count	Remarks
	Japan	Inch area	Metric area		
1	A2	17 x 22	A2	99999999	All counters are 8-digit counters.
2	A3	11 x 17	A3		
3	B4	8.5 x 14	B4 (8K)		
4	A4	8.5 x 11	A4		
5	B5	5.5 x 8.5	B5 (16K)		
6	A5	-	A5		
7	B6	-	F4		
8	8.5x14	-	-		
9	8.5x11	A4	-		
10	Special	Special	Special		

1. Each time a printed copy is ejected, the counter is incremented by 1 regardless of the paper size.
2. If the size of the paper used is none of the paper sizes 1-9 listed above, the counter is incremented in aspecialmanner (SEF and LEF are counted assuming that they are of the same size.)

(2) Collecting data No.4: EDH mode

NO	Items	Maximum count	Remarks
1	Number of originals fed in EDH mode	99999999	All counters are 8-digit counters.
2	Number of originals fed in EDH mode		
3	Number of 1-sided SDF original fed		
4	Number of 2-sided SDF original fed		
5	Number of 1-sided mixed original fed		
6	Number of 2-sided mixed original fed		
7	Number of 1-sided Z-folded mode original fed		
8	Number of 2-sided Z-folded mode original fed		
9	Undefined		
10			
11			
12			
13			
14			
15			
16			

1. The counter is incremented each time one original side has been scanned in each mode.
2. Counters 1 and 2 count original sides independently of counters 3-8.

(3) Collecting data No.5: Black ratio of each section *1

This allows checking the average black ratio of 5000 prints for the latest 30 data.

(4) Collecting data No.6: Black ratio ranking list *1

This allows checking black ratio data, number of prints, transfer paper size, mode, and date for the top 15 job data ranked from highest rates of black ratio.

(5) Collecting data No.7 : JAM data of time series

A jam code, total count, date and time of occurrence, tray type, paper size, and magnification can be displayed for the latest 100 jams.

- *1 This black ratio is the theoretical value obtained by converting the black dot area on the image data and the area of the transfer paper, therefore it is different from the black ratio obtained by the actual printing.

(6) Collecting data No.8: JAM count / Collecting data No.11: JAM count of each section (can be reset)

NO	Description of JAM		Jam position display on operation panel	Maximum count	Counting condition
	Location of jam	Code displayed when display of jam code is selected by 25DIPSW			
1	By-pass paper feed	10-1	5	999999	All counts are 6-digit counters.
2		10-2	5		
3	Tray 1 paper feed	11-1	1		
4		11-2	1		
5	Tray 2 paper feed	12-1	2		
6		12-2	2		
7	Tray 3 paper feed	13-1	3		
8		13-2	3		
9	Tray 4 (LCT)	14-1	4		
10		14-2	4		
11	Paper feed conveyance (common to all trays)	17-1	8		
12	Paper feed conveyance (tray 1)	17-2	6		
13	Paper feed conveyance (tray 2/3)	17-3	6		
14	Paper feed conveyance (tray 2)	17-4	6		
15	Paper feed conveyance (tray 3)	17-5	6		
16	Paper feed conveyance (LCT)	17-6	7		
17	Drum	21-1	9		
18	Second paper feed conveyance	31-1	8		
19		31-2	9		
20	Fixing unit /exit (straight ejection)	32-1	10		
21	Fixing unit /exit (reverse and eject/ADU)	32-2	10		
22	Fixing unit /exit (reverse and eject)	32-3	10		
23		32-4	10		
24	Fixing unit /exit	32-5	10		
25	ADU inlet paper conveyance	92-1	12		
26		92-2	11		
27	ADU paper reversal and conveyance	93-1	12		
28	ADU exit paper conveyance	94-1	12		
29		94-2	12		
30	Vertical paper conveyance jam access door	19-1	6		
31	LCT side door	19-2	13		
32	Front door	51-1	13		
33	Finisher door	71-1	13		
34	ADF	62-1	14		
35		62-2	14		
36		62-3	14		
37		62-4	14		
38		62-5	14		
39		62-6	14		
40		62-7	14		
41		62-8	14		
42		62-9	14		
43		62-10	14		
44		63-1	15		
45		63-2	15		

NO	Description of JAM		Jam position display on operation panel	Maximum count	Counting condition
	Location of jam	Code displayed when display of jam code is selected by 25DIPSW			
46	ADF	63-3	15	999999	All counts are 6-digit counters.
47		63-4	15		
48		63-5	15		
49		63-6	15		
50		63-7	15		
51		63-8	15		
52		63-9	15		
53		63-10	15		
54		63-11	15		
55		61-1	-		
56		61-2	-		
57	FNS	72-16	13		
58		72-17	13		
59		72-18	13		
60		72-19	13		
61		72-20	13		
62		72-21	13		
63		72-22	17		
64		72-23	17		
65		72-24	18		
66		72-25	18		
67		72-26	18		
68		72-27	13		
69		72-28	13		
70		72-29	13		
71		72-30	13		
72		72-32	18		
73		72-33	18		
74		72-34	18		
75	PI	72-35	17		
76		72-36	17		
77		72-37	17		
78	FNS	72-81	13		
79		72-82	13		
80		72-83	13		
81	TU	71-2	-		
82	FNS	72-38	20		
83		72-39	20		
84		72-40	20		
85		72-41	20		
86		72-42	20		
87		72-43	20		
88		72-44	20		
89		72-45	20		
90		72-46	20		
91		72-47	20		
92		72-48	20		
93		71-03	-		

(7) Collecting Data No.9:Count of each copy mode

NO	Item	Maximum count	Counting condition
1	1-1 mode	99999999	All counters are 8-digit counters.
2	1-2 mode		
3	2-1 mode		
4	2-2 mode		
5	EDH1-1 mode		
6	EDH1-2 mode		
7	Mixed original mode		
8	SDF mode		
9	Z-folded original mode		
10	LEF/Lengthwise, SEF/Crosswise normal set		
11	LEF/Crosswise, SEF/Lengthwise normal set		
12	LEF/Lengthwise, SEF/Crosswise reverse set		
13	LEF/Crosswise, SEF/Lengthwise reverse set		
14	Auto (text/photo)		
15	Text		
16	Photo		
17	Increase Contrast		
18	Non STD size		
19	1 oblique staple (Upper Left)		
20	1 staple (upper-right)		
21	2 parallel staples (Left binding)		
22	2 parallel staples (Upper binding)		
23	Left-binding		
24	Right-binding		
25	Top-binding		
26	Tab original		
27	Stapling and Folding		
28	Folding		
29	Main tray: Group		
30	Main tray: Sort		
31	Main tray: Non sort		
32	Subtray: Group (FACE DOWN)		
33	Subtray: Group (FACE UP)		
34	Subtray: Sort (FACE DOWN)		
35	Subtray: Sort (FACE UP)		
36	Subtray: Non sort (FACE DOWN)		
37	Subtray: Non sort (FACE UP)		
38	Cover sheet		
39	Trimmer		
40	Real size copy		
41	Preset magnification E4		
42	Preset magnification E3		
43	Preset magnification E2		
44	Preset magnification E1		
45	Preset magnification R4		

NO	Item	Maximum count	Counting condition
46	Preset magnification R3	99999999	All counters are 8-digit counters.
47	Preset magnification R2		
48	Preset magnification R1		
49	User lens mode 1		
50	User lens mode 2		
51	User lens mode 3		
52	Zoom		
53	Vertical/Horizontal zoom		
54	Maximum zoom		
55	Minimum zoom		
56	APS		
57	AMS		
58	AE		
59	User density level 1		
60	User density level 2		
61	Interrupted copy		
62	Automatic image rotation cancellation		
63	Sheet/cover interleave		
64	Chapter control		
65	Combination		
66	Booklet copy		
67	OHP interleave (copy)		
68	OHP interleave (blank)		
69	Image insert		
70	Dual Page		
71	Program job		
72	Non-image area erase		
73	Reverse image		
74	Auto repeat		
75	Manual repeat		
76	STD size repeat		
77	Frame erasure		
78	Fold erasure		
79	Auto layout		
80	Full-image Area		
81	Image Shift		
82	Reduction shift		
83	Overlay		
84	Water mark		
85	Stamp		
86	Date / Time		
87	Page		
88	Numbering		
89	Set quantity 1		
90	Set quantity 2-5		
91	Set quantity 6-10		

NO	Item	Maximum count	Counting condition
92	Set quantity 11 or more	99999999	All counters are 8-digit counters.
93	Time while power remote 1 is on		Total period of time during which image control board is energized (remote power supply 1 is ON). 1 is counted per minute. This value is written into non-volatile
94	Time while power remote 2 is on		Total period of time during which remote power supply 2 is ON. 1 is counted per minute. This value is written into non-volatile memory when image control is turned OFF.
95	Time while power remote3 is on		Total period of time during which remote power supply 2 is ON and 24 V relay is ON. The count is incremented by 1 per minute. This value is written into non-volatile memory when image control is turned OFF.
96	Time while power remote 4 is on		Total period of time during which remote power supply 3 is ON. The count is incremented by 1 per minute. This value is written into non-volatile memory when image control is turned OFF.
97	Time during low power mode		Total period of time during which low power mode is selected. The count is incremented by 1 per minute.
98	Time during warm up time		Total period of time during which fixing unit heater is ON when machine is not ready for fusing. The count is incremented by 1 per second.
99	Time during front door open		Total period of time during which front door is open. The count is incremented by 1 per second.
100	Ope. time in 1side straight exit		Total time from start to end of printing. The count is incremented by 1 per second. Data is output per minute. (Halt time (machine is not operational due to jam, etc.) is excluded.)
101	Ope. time in 1 side reverse exit		
102	Ope. time in 2 side print		
103	Operation time in EDH mode		Total operation time of ADF. The count is incremented by 1 per second.
104	Morning Correction count		The count is incremented by 1 each time correction is made before starting work in the morning.
105	Time during APS sensor on		Total period of time during which APS sensor is ON. The count is incremented by 1 per second. Data is output per minute.
106	N of main tray used jobs		Number of jobs
107	N of sub tray used jobs		
108	N of stapling folding used jobs		
109	N of folding used jobs		
110	N of EDH NF occurred		
111	N of EDH special error1 occurred		Original size detection error occurrence count
112	N of EDH special error2 occurred		Next original information error occurrence count
113	N of EDH special error3 occurred		Mixed loading prohibited original size error occurrence count

NO	Item	Maximum count	Counting condition
114	N of Scanner scanned	99999999	The count is incremented by 1 each time Platen Mode Copy button is pressed.
115	N of electrode cleaned		
116	N of memory overflow		
117	N of fixing alarm occurred		
118	N of no toner stop occurred		
119	N of AGC retry		
120	N of sub scan beam correct error		
121	N of mis-centering correct error		
122	N of EDH distortion adjust error		
123	N of EDH distortion data error		
124	Compression memory overflow		
125	Page memory overflow (scan)		
126	Page memory overflow (print)		
127	FNS alarm (tray/trimming)		
128	FNS alarm (staple)		
129	Scanner count		
130	N of EDH special error 4 occurred		Ready-time out error
131	Storing for HDD (Sync. with Copying)		
132	Storing for HDD (SRV mode scan-> HDD)		
133	Storing for PC (SRV mode scan-> PC)		
134	Storing for PC (SRV mode HDD-> PC)		
135	Recalling from HDD (SRV mode HDD)		
136	Recalling from PC (SRV mode PC)		
137	Image edit count by SRV		
138	Wide paper count (A3W)		
139	Wide paper count (A4W)		
140	Wide paper count (A4RW)		
141	Wide paper count (A5W)		
142	Wide paper count (Others)		
143	Punch		
144	Z-fold		
145	Shift amount abnormality in repeat mode		

(8) Collecting data No.10: SC count / Collecting data No.12: SC count of each section

NO	Trouble code		Description	Maximum count	Remarks
1	13	1	Paper feed MT EM	9999	All counters are 4-digit counters.
2	13	2	LCT conveyance MT EM		
3	13	3	Loop roller motor fuse blowing detection		
4	18	11	Tray 1 up error 1		
5	18	12	Tray 1 up error 2		
6	18	13	Tray 1 up error 3		
7	18	10	Tray 1 up MT EM error		
8	18	21	Tray 2 up error 1		
9	18	22	Tray 2 up error 2		
10	18	23	Tray 2 up error 3		
11	18	20	Tray 2 up MT EM error		
12	18	31	Tray 3 up error 1		
13	18	32	Tray 3 up error 2		
14	18	33	Tray 3 up error 3		
15	18	30	Tray 3 up MT EM error		
16	18	41	LCT up/down error 1		
17	18	42	LCT up/down error 2		
18	18	43	LCT up/down error 3		
19	18	40	LCT up/down MT EM		
20	18	51	By-pass tray up error 1		
21	18	52	By-pass tray up error 2		
22	18	53	By-pass tray up error 3		
23	21	1	Charging corona unit cleaning MT error 1		
24	21	2	Charging corona unit cleaning MT error 2		
25	21	3	Charging corona unit cleaning MT error 3		
26	21	4	Transfer/separation corona unit cleaning MT error 1		
27	21	5	Transfer/separation corona unit cleaning MT error 2		
28	21	6	Transfer/separation corona unit cleaning MT error 3		
29	23	1	Toner bottle MT EM		
30	23	2	Developing MT EM		
31	23	3	Blade motor excessive current detection		
32	23	4	Drum ready1 1		
33	23	5	Drum ready1 2		
34	23	6	Drum ready1 3		
35	23	7	Blade ready 1		
36	23	8	Blade ready 2		
37	23	9	Blade ready 3		
38	23	10	Drum ready2		
39	23	11	Toner screw motor fuse blowing		
40	24	1	Drum temperature sensor break detection		
41	24	2	Drum temperature sensor grounding error detection		
42	24	3	* Not use this count		
43	24	4	* Not use this count		
44	28	1	Charging EM		
45	28	2	Transfer EM		

NO	Trouble code		Description	Maximum count	Remarks
46	28	3	Separation EM	9999	All counters are 4-digit counters.
47	28	4	High-voltage 24 V fuse blowing		
48	29	1	Maximum density correction error 1		
49	29	2	Maximum density correction error 2		
50	29	3	Maximum density correction error 3		
51	29	4	γ correction error 1		
52	29	5	γ correction error 2		
53	29	6	γ correction error 3		
54	29	7	Dot diameter correction error 1		
55	29	8	Dot diameter correction error 2		
56	29	9	Potential correction error 1		
57	29	10	Potential correction error 2		
58	29	11	Potential correction error 3		
59	29	12	Transfer adjustment error		
60	29	13	Separation AC adjustment error		
61	29	14	Separation DC adjustment error		
62	29	15	Developing bias adjustment error		
63	32	1	Suction fan MT EM 1		
64	32	2	Suction fan MT EM 2		
65	32	3	Suction fan MT EM 3		
66	32	4	Fixing unit cooling fan MT EM 1		
67	32	5	Fixing unit cooling fan MT EM 2		
68	32	6	Fixing unit cooling fan MT EM 3		
69	32	7	Fixing unit cooling fan MT EM 4		
70	33	1	Second paper feed MT EM		
71	33	2	Paper reverse and eject motor fuse blowing		
72	33	3	Pre-transfer R-motor fuse blowing		
73	33	4	Ejection motor fuse blowing		
74	33	5	Web motor fuse blowing detection 1		
75	33	6	Web motor fuse blowing detection 2		
76	34	1	Fixing upper roller high temperature error detection		
77	34	2	Fixing heat roller high temperature error detection		
78	34	3	Fixing upper roller high temperature error detection		
79	34	4	Fixing heat roller high temperature error detection		
80	35	1	Fixing upper roller low temperature error detection		
81	35	2	Fixing heat roller low temperature error detection		
82	36	1	Fixing upper roller sensor error detection		
83	36	2	Fixing heat roller sensor error detection		
84	36	3	Fixing upper roller sensor error		
85	36	4	Fixing heat roller sensor error		
86	36	5	Fixing upper roller S2 error detection		
87	36	6	Fixing heat roller S4 error detection		
88	41	1	Optics unit HP return error 1		
89	41	2	Optics unit HP return error 2		
90	41	3	Optics unit HP return error 3		
91	41	4	Optics unit HP return error 4		

NO	Trouble code		Description	Maximum count	Remarks
92	41	5	Optics unit HP return error 5	9999	All counters are 4-digit counters.
93	41	6	Optics unit HP return error 6		
94	41	7	* Not use this count		
95	41	8	* Not use this count		
96	41	9	Left overrun error		
97	41	10	Polygon mirror MT error 1		
98	41	11	Polygon mirror MT error 2		
99	42	1	Optics unit cooling fan MT EM1		
100	42	2	Optics unit cooling fan MT EM2		
101	42	3	Optics unit cooling fan MT EM3		
102	42	4	Write unit cooling fan MT EM1		
103	42	5	Write unit cooling fan MT EM2		
104	42	6	Write unit cooling fan MT EM3		
105	42	7	Write unit cooling fan MT EM4		
242	42	8	Write unit cooling fan /2MT EM1		
243	42	9	Write unit cooling fan /2MT EM2		
244	42	10	Write unit cooling fan /2MT EM3		
245	42	11	Write unit cooling fan /2MT EM4		
246	42	12	Write unit cooling fan /4MT EM1		
247	42	13	Write unit cooling fan /4MT EM2		
248	42	14	Write unit cooling fan /4MT EM3		
249	42	15	* Not use this count		
250	42	16	Polygon cooling fan /4MT EM1		
251	42	17	Polygon cooling fan /4MT EM2		
252	42	18	Polygon cooling fan /4MT EM3		
253	42	19	Polygon cooling fan /4MT EM4		
106	46	1	APC error		
107	46	2	Scanner FIFO error		
108	46	3	Printer FIFO error		
109	46	5	Compressed input/output FIFO error		
110	46	6	Expansion error		
111	46	8	Index sensor error		
112	46	10	* Not use this count		
113	46	11	* Not use this count		
114	46	12	SVV length error		
115	46	13	Scanner time-out		
116	46	14	Printer time-out		
117	46	15	Expansion device access error		
118	46	16	Compression device access error		
119	46	17	Filter factory error		
120	46	19	Memory in data flow		
121	46	21	Data flow memory mode		
122	46	23	SVV off error		
123	46	24	Black/white collection error		
124	46	25	Level adjustment error		
125	46	26	Invalid correction data by resolution		

NO	Trouble code		Description	Maximum count	Remarks
126	46	27	Density conversion (γ curve generation error)	9999	All counters are 4-digit counters.
222	46	29	Calibration start disabled		
223	46	30	Calibration end disabled		
224	46	31	APC initial sampling error		
225	46	32	MPC error		
226	46	33	Sub-scan beam correction error		
227	46	34	Initialization incomplete		
221	46	40	HDD initialization error		
228	46	41	Failure in job RAM data storage on HDD		
229	46	42	HDD periodic cleaning error		
230	46	43	No stamp/overlay image specified		
233	46	50	Tandem communication error		
234	46	51	Tandem image communication error		
127	46	64	PWM γ curve generation failure		
128	46	80	Insufficient/broken message queue		
129	46	81	Invalid message or method parameter		
130	46	82	Invalid task		
131	46	83	Invalid event		
132	46	90	Memory access error		
133	46	91	Header access error		
254	49	0	Bad VIF board		
255	49	1	VIF communication error		
256	49	2	DMA error		
134	50	1	Main body drive serial input error 1		
135	50	2	Main body drive serial input error 2		
136	50	3	Main body drive serial input error 3		
137	50	4	Main body drive serial input error 4		
138	50	5	Drive board communication reception error detection		
139	50	10	Image control board communication connection error		
140	50	11	Image control board communication		
141	52	1	Internal cooling fan MT12 EM1		
142	52	2	Internal cooling fan MT12 EM2		
143	52	3	Internal cooling fan MT1 EM1		
144	52	4	Internal cooling fan MT1 EM2		
145	52	5	Internal cooling fan MT2 EM1		
146	52	6	Internal cooling fan MT2 EM2		
147	52	7	Internal cooling fan MT3 EM1		
148	52	8	Internal cooling fan MT3 EM2		
149	52	9	Internal cooling fan MT3 EM3		
150	52	10	Internal cooling fan MT1/2 EM		
151	52	11	Internal cooling fan MT3 EM		
152	53	1	Main MT EM		
153	53	2	TC fuse blowing detection 1		
154	53	3	TC fuse blowing detection 2		
155	53	4	Key counter fuse blowing detection 1		
156	53	5	Key counter fuse blowing detection 2		







NO	Trouble code		Description	Maximum count	Remarks
157	53	6	12 V fuse blowing detection	9999	All counters are 4-digit counters.
158	53	7	5 V fuse blowing detection		
159	53	8	Printer control 12 V detection		
160	53	9	* Not use this count		
161	53	10	* Not use this count		
162	53	11	SD/MC fuse blowing detection 1		
163	53	12	SD/MC fuse blowing detection		
165	56	1	Operation panel ISW not written		
164	56	2	Initial communication failure		
166	60	1	Communication (send) error		
167	60	2	Communication (reception) error		
217	60	3	ADF initial communication error		
168	60	11	DF ISW not written		
169	67	1	Registration sensor error		
170	67	2	Read sensor error		
171	67	3	LSB sensor error		
172	67	4	Non-volatile memory error		
173	67	5	Fan motor driving error		
174	67	6	CBS sensor error		
175	67	7	SSB sensor error		
176	67	8	Paper feed tray up/down driving error		
177	70	1	* Not use this count		
178	70	2	* Not use this count		
179	77	1	Shift driving error		
180	77	2	Tray up/down driving error		
181	77	3	Matching plate drive error		
182	77	4	Ejection roller drive error		
183	77	5	Ejection slot driving error		
184	77	6	Stapler movement unit driving error		
185	77	7	Stapler rotation unit driving error		
186	77	8	Stapler rotation unit driving error		
187	77	11	Stapler F-unit error		
188	77	12	Stapler R-unit error		
189	77	15	Edge conveyance motor driving error		
190	77	21	Stapler rear end stopper motor		
191	77	22	Stapler side guide motor		
192	77	23	Stapler stopper release motor		
193	77	24	Center fold rear end stopper motor		
194	77	25	Center fold knife motor driving error		
195	77	26	Middle fold conveyance motor driving error		
196	77	31	Cutter transfer driving error		
197	77	32	Cutter driving error		
198	77	33	Cutter rear end stopper driving error		
199	77	34	Cutter rear end release motor driving error		
200	77	35	Cutter press motor driving error		
231	77	36	Trimmer pusher motor driving error		

NO	Trouble code		Description	Maximum count	Remarks
232	77	37	Trimmer holder motor driving error	9999	All counters are 4-digit counters.
201	77	41	Sheet feeder up motor driving error		
236	77	52	Z-folding 1st stopper motor driving failure		
237	77	53	Z-folding 2nd stopper motor driving failure		
238	77	54	Punch motor driving failure		
239	77	55	Punch shift motor driving failure		
240	77	56	Fan motor driving error		
241	77	61	Anti-taking fan motor error		
202	77	91	Sub-CPU reception error		
203	77	92	Main CPU reception error		
204	80	1*	Printer control ISW not written		
218	80	1	Printer control initial communication error		
219	80	2	Printer control communication error		
220	80	3	Operation panel communication error		
205	80	21	VIF control ISW not write		
206	80	30	ISW time-out error		
207	80	31	ISW data error		
208	80	32	ISW write error		
209	90	1	ADU drive serial input error 1		
210	90	2	ADU drive serial input error 2		
211	93	1	12 V fuse blowing detection		
212	93	2	-5 V fuse blowing detection		
213	93	3	ADU conveyance motor fuse blowing detection		
214	93	4	ADU reversal motor fuse blowing		
215	93	5	SD/MC fuse blowing detection 1		
216	93	6	SD/MC fuse blowing detection 2		

Note: When DIPSW3-1 is set to 1, SC34, 35, and 36 are not counted.

[7] Copy Count by Parts to be Replaced (Fixed Parts)

This function allows you to display or reset the copy count for a fixed part or data.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Select “  Parts counter.”
3	[Parts Count Menu Screen] Select “  Count of special parts.”
4	[Copy Count by Parts to be Replaced (Fixed) Screen] Data numbers (No.), part names (Name), and count values are displayed in a list format. Using  and  keys, select a part name. To scroll the screen, use  and  keys.
5	Press the COUNT RESET key to reset the count value of the part displayed in reverse video.
6	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

Copy count parts counter

NO	Part name	Maximum count	Counting condition
1	Fixing cleaning web	99999999	Count 1 per ejected paper for single sided, 2 for double sided
2	Developer		Always unaffected by 25DIPSW
3	OPC drum		For A3, 11x17, count 2 per ejected paper for single sided, 4 for double sided
4	Cleaning blade		25DIPSW8-6
5	Fur brush		=0: Count 1 per ejected paper for single sided, 2 for double sided
6	Charging grid		=1: For A3, 11x17, 8k, count 2 per ejected paper for single sided, 4 for double sided
7	Charging unit cleaning		
8	Suction filter		
9	Separation claws		
10	Trans./sep. wire		
11	Trans./sep. CL unit		
12	Fixing upper roller		
13	Fixing lower roller unit		
14	Fixing claws upper		
15	Fixing claws lower		
16	Heat insulate sleeve (upper)		

NO	Part name	Maximum count	Counting condition
17	Upper roller bearing	99999999	25DIPSW8-6 =0: Count 1 per ejected paper for single sided, 2 for double sided =1: For A3, 11x17, 8k, count 2 per ejected paper for single sided, 4 for double sided
18	Fixing Cleaning Sheet		
19	Temperature sensor		
20	Trans./sep. corona unit		
21	Heat insulate sleeve		
22	Heat roller holder		
23	Upper roller error detection sensor		
24	Heating roller error detection sensor		
25	Fixing heat rollers		
26	Ozone filter		
27	Charging corona		
28	PCL		
29	Developing unit		
30	TSL		
31	Tray 1 feed roller		1 is counted each time the paper from tray 1 is ejected.
32	Tray 1 conv/rev roller		
33	Tray 1 feed clutch		
34	Tray 1 convey clutch		
35	Tray 1 feed count		
36	Tray 2 feed roller		1 is counted each time the paper from tray 2 is ejected.
37	Tray 2 conv/rev roller		
38	Tray 2 feed clutch		
39	Tray 2 convey clutch		
40	Tray 2 feed count		
41	Tray 3 feed roller		1 is counted each time the paper from tray 3 is ejected.
42	Tray 3 conv/rev roller		
43	Tray 3 feed clutch		
44	Tray 3 convey clutch		
45	Tray 3 feed count		
46	Tray 4 feed roller		1 is counted each time the paper from LCT is ejected.
47	Tray 4 conv/rev roller		
48	Tray 4 feed clutch		
49	Tray 4 convey clutch		
50	Tray 4 feed count		
51	By-pass feed roller		1 is counted each time the paper from by-pass tray is ejected.
52	By-pass conveyance/reverse roller		
53	By-pass count		1 is counted each time the paper from tray 1/2/3 is ejected.
54	V-convey exit roller		
55	V-convey exit roller/M		1 is counted each time the paper from tray 2/3 is ejected.
56	V-convey exit roller/L		1 is counted each time the paper from tray is ejected
57	V-convey clutch		1 is counted each time the paper from tray 2/3 is ejected.
58	FNS Up/Down motor		1 is counted each time the paper from FNS main tray is ejected. 1 is counted each time a copy is ejected in stapling mode.

NO	Part name	Maximum count	Counting condition
59	FNS stapler/front	99999999	1 is counted each time a copy is ejected in stapling front 1-point stapling, stapling 2-point stapling, or middle binding mode.
60	FNS stapler/rear		1 is counted each time a copy is ejected in stapling rear 1-point stapling, stapling 2-point stapling, or middle binding mode.
61	FNS shift motor		1 is counted each time even-numbered paper is ejected.
62	FNS exit cont. motor		1 is counted each time large size stapling (A4R/8.5x 11R or larger) job starts. 1 is counted each time paper is ejected from each section. 1 is counted each time stapling and folding or folding job starts.
63	Saddle stitch stop M		1 is counted each time paper is ejected in stapling and folding or folding mode.
64	FNS folding motor		1 is counted each time PI cover sheet is ejected.
65	FNS feed clutch(PI)		Number of originals passes in all modes
66	ADF pickup roller		
67	ADF feed roller		
68	ADF retard roller		
69	ADF sub pick roller		
70	ADF torque limiter		All originals passed in SDF mode
71	ADF SDF solenoid		
72	ADF LSB solenoid		1) 1 is counted each time original is set in large size 1-sided original mode. 2) 1 is counted each time original is set in large size 2-sided original mode.
73	ADF press/release SD		1 is counted each time original is set in large size 2-sided original mode.
74	ADF SSB solenoid		1 is counted each time all-size 2-sided original mode.
75	Toner seal board		1 is counted each time 1-sided original is ejected; 2 is counted each time 2-sided original is ejected.
76	Guide plate assy		-
77	Registration clutch		2 is counted each time 2-sided paper is ejected. (0 is counted when 1-sided paper is ejected.)
78	ADU pre-regis. CL		1 is counted each time 1-sided paper is ejected; 2 is counted each time 2-sided paper is ejected.
79	Regis. feed count		2 is counted each time 1-sided paper is ejected after being reversed. 0 is counted each time 1-sided paper is ejected straight. 1 is counted each time 2-sided paper is ejected.
80	Reversal exit count		2 is counted each time 2-sided paper is ejected. (0 is counted when 1-sided paper is ejected.)
81	Paper feed count ADU		Unit
82	Exposure ON time		1 is counted each time the power is turned OFF with the main SW set at OFF.
83	Main switch		1 is counted each time front door is opened.
84	Door switch		1 is counted each time 1-sided paper is ejected; 2 is counted each time 2-sided paper is ejected.
85	Web motor		

NO	Part name	Maximum count	Counting condition
86	Paper adjuster (trimmer)	99999999	Incremented by 1 each time the cutter operates.
87	Punching unit (2 Hole)		Incremented by 1 each time the puncher operates.
88	Punching unit (3 Hole)		
89	Punching unit (4 Hole)		
90	Developing suction duct		25DIPSW8-6 =0: Count 1 per ejected paper for single sided, 2 for double sided =1: For A3, 11x17, 8k, count 2 per ejected paper for single sided, 4 for double sided
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			
101			
102			
103			
104			



126		99999999	
127			
128			

Note: Definition of large-size originals in terms of part counting.

The following originals are defined as large size original.

1. Sizes of originals ejected to exit tray (for large size) of DF (A4/B4/A4R/B5R/F4/11x17/8.5x14/8.5x11R)
2. All originals in mixed original mode

[8] Copy Count by Parts to be Replaced (Optional Parts)

This function allows you to make the following settings for an optional part or data:

1. Copy count resetting
2. Limit value setting
3. Part number setting
4. Part name setting

The above settings can be made for 30 data numbers, No.1 to No.30.

The copy count is incremented by 1 for each side irrespective of the paper size.

1. Resetting the Copy Count by Parts to be Replaced (Optional Parts)

This function allows you to reset the copy count by parts to be replaced (optional parts).

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the " 5 Parts counter".
3	[Copy count of part menu Screen] Select the " 2 Count of each parts".
4	[Copy count of each part Screen] Data numbers (No.), part names (Name), part numbers (P/N), and count/limit values are displayed in a list format. Using ▲ and ▲ keys, select a part name. To scroll the screen, use ▼ and ▲ keys.
5	Press the COUNT RESET key to reset the count value of the part displayed in reverse video.
6	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

Reference: If the copy count exceeds the limit, the * mark appears to the left of the limit value.

2. Changing the data on the Copy Count by Parts to be Replaced (Optional Parts)

This function allows you to change the limit value, part number, or part name for the desired optional copy count by parts to be replaced (optional parts).

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the " 5 Parts counter".
3	[Copy count of part menu Screen] Select the " 2 Count of each parts".
4	[Copy count of each part Screen] Data numbers (No.), part names (Name), part numbers (P/N), and count/limit values are displayed in a list format. Using ▲ and ▲ keys, select a data number. To scroll the screen, use ▼ and ▲ keys.
5	Press the Part Name Set, P/N Set, or Limit Set key.
6	[Data change screen by parts to be replaced] Press the Parts name , P/N set or Limit set key corresponding to the data you want to change.
7	Enter new data using alphabetic and numeric keys.
8	Perform steps 6 and 7 repeatedly to change other data.
9	Press the OK key to allow the new data to take effect. To cancel the new data, press the CANCEL key. Pressing either key will display the Copy count by parts to be replaced (optional parts) screen again.
10	Press the PREVIOUS SCREEN key to return to the 25 Mode Menu. Screen.

Reference1: The characters entered in the data field of each data item will be shifted to the left one after another.

Reference2: When the number of entered characters exceeds 10, the leftmost character will disappear.

[9] Setting Passwords

This function allows you to set the following passwords:

1. Key operator password (4 digits)
This password is required to enter the key operator mode.
2. EKC master key code (8 digits) *1
This code is necessary when entering various EKC setting modes.

Note: Name of system
EKC : Exsept UAS area
ECM : USA area only

3. Weekly timer password (4 digits)
This password is necessary when entering various weekly timer setting modes.

Note: This password cannot be set if "Weekly timer ON" is not specified for the weekly timer in the key operator mode.

4. HDD management password (4 digits)
This password is necessary when entering various HDD management modes.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the " [6] Password setting".
3	[Password setting mode Screen] Select "key operator password (4 digits)", "EKC master key code (8 digits)", "Weekly timer password (4 digits)" or "HDD management password (4 digits)".
4	Enter a new password using numeric keys.
5	Perform step 3 and 4 repeatedly to set other passwords.
6	Press the [OK] key to allow the passwords to take effect. To cancel the new passwords, press the [CANCEL] key. Pressing either key will display the 25 Mode Menu. Screen again.




Reference1: The digits entered in the data field of each data item will be shifted to the left one after another.

Reference2: When the number of entered digits exceeds 4 or 8, the leftmost character will disappear.

Reference3: Setting the key operator password, weekly timer password, and HDD management password to "0000" allows you to use individual modes without passwords. That is, the menu screen of each mode appears directly without displaying the password input screen.

[10] Setting the Telephone Number and/or Fax Number of the Service Center

This function allows you to set the telephone number and/or fax number of the service center displayed when a service call occurs. The telephone number and/or fax number are/is also displayed as the basic help topic "Contact Number of Service Center" on the user screen. This function is not related to the RD mode; the telephone number and/or fax number are/is just displayed on the screen.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the "  Telephone Number setting".
3	[Customer support TEL/FAX setting Screen] Select "Service center Telephone number (16 digits)" or "Service center Fax number (16 digits)".
4	Enter the telephone or fax number using numeric keys.
5	To set both telephone number and fax numbers, perform steps 3 and 4 repeatedly.
6	Press the  key to allow the telephone number and/or fax number to take effect. To cancel the telephone number and/or fax number, press the  key. Pressing either key will display the 25 Mode Menu. Screen again.

Reference1: If the length of a telephone or fax number is shorter than 16 digits, use a hyphen(s) to make the overall length 16 digits.

Reference2: The entered digits will be shifted to the left one after another, starting at the right end.

[11] Setting the Serial Number

This function allows you to display, set, or change the serial number of the main body or option.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the " [8] Serial number setting".
3	[Serial number setting mode Screen] Press the [Main body] , [Option tray] , [EDH] or [Finisher] key.
4	Enter the serial number using alphabetic and numeric keys.
5	Perform steps 3 and 4 repeatedly to set other serial numbers.
6	Press the [OK] key to allow the serial numbers to take effect. To cancel the serial numbers, press the [CANCEL] key. Pressing either key will display the 25 Mode Menu. Screen again.

Reference1: If the set serial number is invalid, a pop-up window appears to display a warning message. Press the **[OK]** key to close the pop-up window, then enter a valid serial number again.

Reference2: The entered characters will be shifted to the left one after another, starting at the right end.

[12] Displaying the ROM Version

This function allows you to display the versions of the installed ROMs.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu. Screen] Select the " [9] Indication of ROM version".
3	[Indication of ROM Version Screen] The versions of the ROMs installed in the image control, printer control, finisher, EDH, and VIF board are displayed.
4	Press the [PREVIOUS SCREEN] key to return to the 25 Mode Menu. Screen.

[13] List of Adjustment Items for 25 Mode

Adjustment Item Menu			Remarks
①	Software SW setting		See "list of Software DIP Switches".
②	Paper size setting		
③	PM count	Resetting PM Count	
		Setting PM cycle	
④	Data collection	① Total count of each paper size	
		② Copy count of each paper size	
		③ Print count of each paper size	
		④ EDH count	
		⑤ Black ratio of each section	
		⑥ Black ratio ranking list	
		⑦ JAM data of time series	
		⑧ JAM count	
		⑨ Count of each copy mode	
		⑩ SC count	
		⑪ JAM count of each section	
		⑫ SC count of each section	
⑤	Parts counter	① Count of special parts	COUNT RESET
		② Count of each part	COUNT RESET Part name setting P/N setting Limit Setting
⑥	Password setting	Key Operator password	4 digits
		EKC master key code	8 digits
		Weekly timer password	4 digits
		HDD management password	4 digits
⑦	Telephone/Fax number setting	Customer support telephone number	16 digits
		Customer support FAX number	16 digits
⑧	M/C serial number setting	Main body	
		Optional tray	
		EDH	
		Finisher	
⑨	Indication of ROM version		Indication of versions of ROMs installed in the image control, printer control, panel, finisher, and EDH, Z-fold.
⑩	RD-moed setting		
⑪	ISW		
⑫	Setting date input		

36 MODE

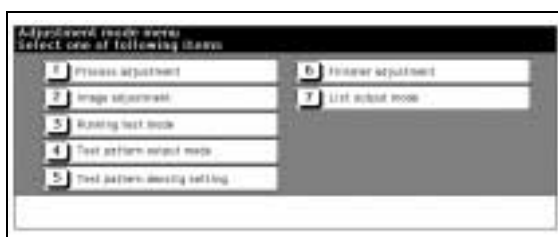
[1] Setting Method

A special adjustment mode called the 36 Mode is provided. This mode is used to perform various adjustments.

1. Turn off the main switch.
2. Turn on the main switch while holding down both paper quantity buttons 3 and 6. The 36 Mode Menu Screen appears.

At this point, you are in 36 mode and normal copy operation is disabled.

[Adjustment mode menu Screen]



3. Press the number key corresponding to the item to adjust.
The setting screen for each item is displayed.
4. Enter data in each adjustment screen.
5. If there are several adjustment items, press the **[NEXT]** or **[PREVIOUS]** key to select the desired item. If there are more screens below, press the key displayed on screen to change screen.
6. Enter data and press the **[SET]** key if it is available, to confirm your entry.
7. Press the **[PREVIOUS SCREEN]** key to end adjustment.
8. Turn off the main switch and exit the 36 mode.
9. The new adjustment values take effect after restarting the machine.

[2] High Voltage Adjustment

Adjusting the high voltage for charging, transfer, separation, and development.

1. Select " **[1]** Process adjustment" in the adjustment mode menu Screen to display the Process adjustment mode menu Screen.
2. Press " **[1]** High voltage adjustment" in the Process adjustment mode menu Screen to display the High voltage adjustment menu.
3. High voltage adjustment consists of the following:
 - [1]** High Voltage Auto Adjustment
 - [2]** High Voltage Adjustment (Charge)
 - [3]** High Voltage Adjustment (Transfer)
 - [4]** High Voltage Adjustment (Separation AC)
 - [5]** High Voltage Adjustment (Separation DC)
 - [6]** High Voltage Adjustment (Charging grid voltage)
 - [7]** High Voltage Adjustment (Bias of development)
 - [8]** Transfer Guide Confirm
4. Press the number button corresponding to the item to be adjusted.
The adjustment screen of the selected item is displayed.
5. When adjustment completes, the screen returns to the High Voltage Adjustment Menu Screen.
6. Press the **[PREVIOUS SCREEN]** key in the High Voltage Adjustment Menu Screen to return to the Process Adjustment Menu Screen.

1. High Voltage Auto Adjustment

Charging, separation (AC), separation (DC), development bias current and voltage are adjusted in sequence.

Preparation: Be sure the drum unit is set.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [1] Process adjustment".
3	[Process Adjustment Menu Screen] Press " [1] High Voltage Adjustment."
4	[High Voltage Adjustment Menu Screen] Press " [1] high Voltage Auto Adjustment."
5	[High Voltage Auto Adjustment Screen] Press the [Start] key. Various high voltage adjustments are made automatically. Adjustment completes in about 30 seconds and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Process Adjustment Menu Screen.

Reference1:

If a transfer adjustment error, separation DC adjustment error, separation AC adjustment error or development bias adjustment error message is displayed during high voltage auto adjustment, clean the unit associated with the error, check its installation state and retry the high voltage auto adjustment.

2. High Voltage Adjustment (Charge)

High Voltage Adjustment (Charge) is inhibited in the field.

3. High Voltage Adjustment (Transfer)

Default setting value must be set under the guidance of Technology Support Center.

4. High Voltage Adjustment (Separation AC)

Default setting value must be set under the guidance of Technology Support Center.

5. High Voltage Adjustment (Separation DC)

Default setting value must be set under the guidance of Technology Support Center.

6. High Voltage Adjustment (Charging Grid Voltage)

High Voltage Adjustment (Charging Grid Voltage) is inhibited in the field.

7. High Voltage Adjustment (Bias of Development)

Default setting value must be set under the guidance of Technology Support Center.

8. Transfer Guide Confirm

Transfer Guide Confirm is inhibited in the field.

[3] Drum Peculiarity Adjustment

Adjusting the blade set, drum potential, maximum density (Dmax), dot diameter, laser offset and gamma.

1. Select **[1]** Process adjustment in the 36 Mode Menu Screen to display the Process Adjustment Menu Screen.
2. Press **[2]** Drum peculiarity adjustment in the Process Adjustment Menu Screen to display the Drum Peculiarity Adjustment Menu Screen.
3. Drum peculiarity adjustment consists of the following:
 - [1]** Blade setting mode
 - [2]** Auto drum potential adjustment
 - [3]** Auto maximum density adjustment (Dmax adjustment)
 - [4]** Auto dot diameter adjustment
 - [5]** LD1 offset adjustment
 - [6]** LD2 offset adjustment
 - [7]** LD1 bias adjustment
 - [8]** LD2 bias adjustment
 - [9]** LD sub-pitch offset adjustment
 - [10]** Auto gamma adjustment (1 dot)
 - [11]** Cartridge set mode
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item is displayed.
5. When adjustment completes, the screen returns to the Drum Characteristic Adjustment Menu Screen.
6. Press the **[PREVIOUS SCREEN]** key in the Drum Characteristic Adjustment Menu Screen to return to the Process Adjustment Menu Screen.

1. Blade setting mode

In this mode, toner stuck on the drum surface during replacement of the cleaning blade or drum is removed to prevent damage to the drum and cleaning blade.

Preparation: Be sure the drum unit is set.

Apply setting powder to all the surface of the drum.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [1] Process adjustment".
3	[Process adjustment Screen] Press " [2] Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " [1] Blade setting mode".
5	[Blade setting mode Screen] Press the [Start] key. Adjustment completes in about 5 second and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

2. Auto drum potential adjustment

Automatically adjusting the development bias and drum applied voltage by measuring the drum potential.

This adjustment should be performed when the drum or developer is replaced.

Preparation: Be sure the drum unit is set and developer is in the developing unit.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 2 " Auto drum potential adjustment".
5	[Auto drum potential adjustment Screen] Press the [Start] key. Development bias and applied voltage are adjusted automatically. Adjustment completes in about 10 seconds and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

Reference:

If any one of the following error messages appears during auto drum potential adjustment, clean the DPSB (drum potential sensor board), check its installation state, and retry the auto drum potential adjustment.

Error 1: During drum surface sensor 0 V check, a voltage over 100 V has been detected for 5 or more times.

Error 2: It has been judged that VI is 350 V or higher and no control patch is output.

Error 3: Drum potential has been corrected 10 or more times, but it does not converge.

3. Auto maximum density adjustment (Dmax adjustment)

Automatically adjusting maximum density (Dmax).

This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set, developer is in the developing unit. Auto drum potential adjustment must have been complete.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 3 " Auto maximum density adj."
5	[Auto maximum density adjustment Screen] Press the [Start] key. The maximum density (Dmax) is adjusted automatically. Adjustment completes in about 20 seconds and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

Reference:

If any one of the following error messages appears during auto maximum density adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto maximum density adjustment.

Error 1: The Dmax sensor dirt correction has been corrected 10 or more times, but it does not converge.

Error 2: Maximum density adjustment is not complete when the developing sleeve rotation speed reaches the specified value.

Error 3: No signal is output from the Dmax sensor. No control patch is output.

4. Auto dot diameter adjustment

Automatically adjusting the dot diameter.

This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set, developer is in the developing unit. Auto drum potential adjustment and auto maximum density adjustment must have been complete.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 4 " Auto dot diameter adjustment".
5	[Auto Dot Diameter Adjustment Screen] Press the [Start] key. The dot diameter is adjusted automatically. Adjustment completes in about 30 seconds and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

Reference:

If either of the following error messages appears during auto dot diameter adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto dot diameter adjustment.

Error 1: The γ sensor dirt correction has been corrected 10 or more times, but it does not converge.

Error 2: Auto dot diameter adjustment has ended with an abnormal value.

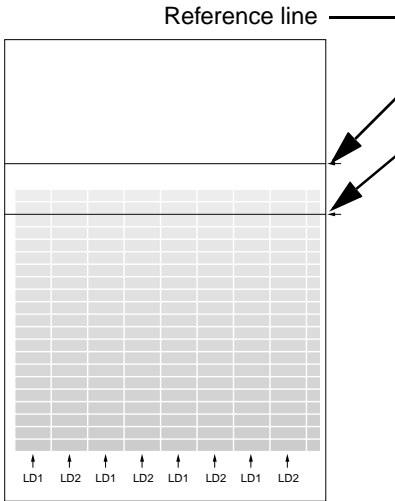
5. LD1 offset adjustment

Adjusting the LD1 laser write position.

This adjustment should be performed when the drum or developer is replaced. (Adjusting 400 dpi and 600 dpi must be completed.)

Preparation: Be sure the drum unit is set . Auto drum potential adjustment, auto maximum density adjustment, and auto dot diameter adjustment must have been complete.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 5 " LD1 offset adjustment".
5	[LD1 offset adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper and press the [Start] key to output the test pattern.

7	<p>Check the test pattern.</p> <p>Specification: The density of test pattern image resulting from two laser output (vertical and horizontal scanning) must be even vertically and horizontally between two image density reference lines, as shown in the following figure.</p> 
8	If the specification is not satisfied, press the C button while pressing the Utility key.
9	<p>[LD1 offset adjustment Screen] Enter an offset value using the numeric keys and press the [SET] key. Setting range: -128 to +127</p>
10	Repeat steps 5 to 9 until the specification is satisfied.
11	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

6. LD2 offset adjustment

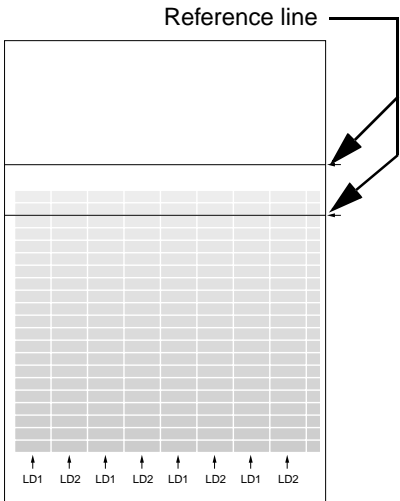
This adjusts the place at which LD2 laser starts writing.

This adjustment should be performed when the drum or developer is replaced. The adjustment is performed at line speed of 320, 280 and 185 respectively.

Be sure the drum unit is set.

Auto maximum density adjustment, auto dot diameter adjustment, and LD1 offset adjustment must have been completed.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [1] Process adjustment".
3	[Process adjustment mode menu Screen] Press " [2] Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " [6] LD2 offset adjustment".
5	[LD1 offset adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper and press the [Start] key to output the test pattern.

7	<p>Check the test pattern.</p> <p>Specification:</p> <p>The density of test pattern image resulting from two laser output (vertical and horizontal scanning) must be even vertically and horizontally between two image density reference lines, as shown in the following figure.</p> 
8	<p>If the specification is not satisfied, press the C button while pressing the Utility key.</p>
9	<p>[LD2 offset adjustment Screen]</p> <p>Enter an offset value using the numeric keys and press the [SET] key.</p> <p>Setting range: -128 to +127</p>
10	<p>Repeat steps 5 to 9 until the specification is satisfied.</p>
11	<p>Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.</p>

- 7. LD1 bias adjustment**
LD1 bias adjustment is not performed in the field.
- 8. LD2 bias adjustment**
LD2 bias adjustment is not performed in the field.
- 9. LD sub-pitch offset adjustment**
LD sub-pitch offset adjustment is not performed in the field.

10. Auto Gamma Adjustment (1 dot)

Performing gamma adjustment automatically. This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set and auto drum potential adjustment, auto maximum density adjustment, auto dot diameter adjustment, LD1 offset adjustment, and LD2 offset adjustment must have been complete.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 10 " Auto gamma adjustment (1 dot)".
5	[Auto gamma adjustment Screen] Press the [Start] key. The drum and developer operate to automatically adjust Gamma. Adjustment completes in about 20 seconds and an end message is displayed.
6	Press the [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

Reference:

If any one of the following error messages appears during auto gamma adjustment, clean the TCSB (toner control sensor board), check its installation state, and retry the auto gamma potential adjustment.

Error 1: The γ sensor dirt correction has been corrected 10 or more times, but it does not converge.

Error 2: No signal is output from the γ sensor. No control patch is output.

Error 3: A recurrence error occurred during γ curve calculation.

11. Cartridge set mode

This adjustment should be performed when black dots appear on the copy after the drum removing and installing.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment Screen] Press " 2 " Drum peculiarity adjustment".
4	[Drum peculiarity adjustment mode menu Screen] Press " 11 " Cartridge set mode".
5	[Cartridge set mode Screen] Press the [Start] key.
6	The developing unit and the drum rotate for two minutes, and return to Cartridge set mode Screen.
7	Press the [COPY SCREEN] key.
8	Select the wide paper (A3, A4, 11x17, 8.5 x11) in the direction of the drum shaft, set 10 copies, and press START button.
9	If black dots still appear, press the C button while pressing the Utility key to return to the cartridge set mode, and repeat the step 5 to 8.
10	Press the C button while pressing Utility key when black dots disappear.
11	Press [PREVIOUS SCREEN] key to return to the Drum peculiarity adjustment mode menu Screen.

[4] Drum Peculiarity Adjustment (Manual)**1. Maximum density adjustment**

This adjustment must be performed under the guidance of Technology Support Center.

Variable range: 0 to 255

2. Dot diameter manual adjustment

This adjustment must be performed under the guidance of Technology Support Center.



Variable range: 0 to 255

[5] User Paper Setting

This adjustment is only performed when the user uses special copy paper and can not be adjusted using the standard adjustment process.

This setting is applied when "User" is selected for "Paper type/Special size setting" in the key operator mode or when "User paper" is selected for "Transfer/separation corona unit output for plain paper" or "recycled paper" in 25 mode DIPSW.

The data for 64 g/m² plain paper" is input as the default.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press "  Process adjustment".
3	[Process adjustment Screen] Select "  User paper setting".
4	Transfer/separation output screen appears. Enter data according to the user specified paper. Data should be input under the guidance of MINOLTA Technology Support Center.

[6] Recall Standard Data (Process Adjustment)

Restoring process adjustment settings to standard values (factory setting data).

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 1 " Process adjustment".
3	[Process adjustment mode menu Screen] Select " 5 " Recall standard data".
4	[Recall standard data Screen] Press the YES key. Various data is restored to standard values.
5	Press the PREVIOUS SCREEN key to return to the Process adjustment Screen.

[7] Tray Adjustment

This adjustment should be performed when the tray or by-pass unit is replaced.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Select " 1 " Tray adjustment".
4	[Tray adjustment Screen] Press the NEXT or PREVIOUS key to select the tray to be adjusted. The screen changes from Tray 1 (1) to Tray 1 (2) to Tray 2 (1) to Tray 2 (2) to Tray 3 (1) to Tray 3 (2) to By-pass 1 to By-pass 2. Using a scale, set the distance between (the inner surface of) the paper side guide plates of each tray to 250 mm on Tray (1), and to 280 mm (8.5x11) on Tray (2). Set the distance between (the inner surfaces of) the paper side guide plates of by-pass tray 1 to 210 mm (A4R) and tray 2 to 280 mm (8.5 x 11) respectively.
5	Press the Start key. The selected tray is automatically adjusted. After adjustment completes, a message is displayed.
6	Press the PREVIOUS SCREEN key.

[8] Magnification Adjustment

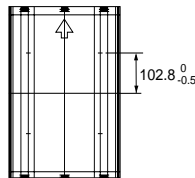
Adjusting the printer and copy vertical and horizontal magnifications.

1. Select " **2** Image adjustment" in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press " **2** Magnification adjustment" in the Image adjustment mode menu Screen to display the Magnification adjustment mode menu Screen.
3. Magnification adjustment consists of the following:
 - 1** Printer drum clock adjustment
 - 2** Printer horizontal adjustment
 - 3** Scanner drum clock adjustment
 - 4** EDH drum clock adjustment
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen for the selected item is displayed.
5. After adjustment completes, the screen returns to the Magnification Adjustment Menu Screen.
6. Press the **PREVIOUS SCREEN** key on the Magnification adjustment menu Screen to return to the Image adjustment mode menu Screen.

Caution: Check and adjust the printer drum clock adjustment during maintenance. Also adjust the printer restart timing because it changes with the printer drum clock adjustment.

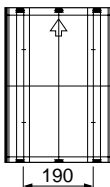
1. Printer vertical magnification adjustment

Adjusting the printer vertical magnification.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 Image adjustment".
3	[Image adjustment mode menu Screen] Select " 2 Magnification adjustment".
4	[Magnification adjustment mode menu Screen] Press " 1 Printer drum clock adjustment".
5	[Printer drum clock adjustment Screen] Press the COPY SCREEN key.
6	Select A3 size paper and press the START button to output the test pattern (No.16).
7	Measure the vertical magnification with a ruler. Specification: $\pm 0.5\%$ or less (100% magnification) Within $\begin{matrix} 0 \text{ mm} \\ -0.5 \text{ mm} \end{matrix}$ with respect to 102.8 mm. <div style="text-align: center;">  </div>
8	If the specification is not satisfied, press the C button while pressing the Utility key.
9	[Printer drum clock adjustment Screen] Enter a value using the numeric keys and press the SET key. Setting range: -27 to +100 1 step = 0.05 %
10	Repeat steps 5 to 9 until the specification is satisfied.
11	Press the PREVIOUS SCREEN key to return to the Magnification adjustment mode menu Screen.

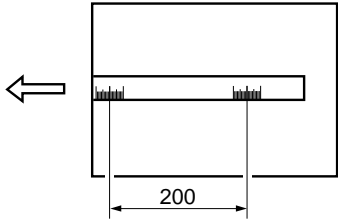
2. Printer horizontal magnification adjustment

Adjusting the printer horizontal magnification.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Select " [2] Magnification adjustment".
4	[Magnification adjustment mode menu Screen] Press " [2] Printer horizontal magnification adjustment".
5	[Printer horizontal adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper and press the START button to output the test pattern (No.16).
7	Measure the horizontal magnification with a ruler. Specification: $\pm 0.5\%$ or less (100 % magnification) Within ± 1 mm with respect to 190 mm. 
8	If the specification is not satisfied, press the C button while pressing the Utility key.
9	[Printer horizontal adjustment Screen] Enter a value using the numeric keys and press the [SET] key. Setting range: -10 to +10 1 step = 0.1 %
10	Repeat steps 5 to 9 until the specification is satisfied.
11	Press the [PREVIOUS SCREEN] key to return to the Magnification adjustment mode menu Screen.

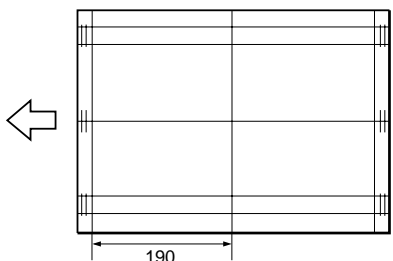
3. Scanner (platen) drum clock magnification adjustment

Adjusting the vertical magnification for the scanner.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Select " [2] Magnification adjustment".
4	[Magnification adjustment mode menu Screen] Press " [3] Scanner drum clock adjustment".
5	[Scanner (Platen) drum clock adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper, place a scale on the platen glass so that it runs parallel with the Original stopper plate rear, and press the START button.
7	Measure the vertical magnification with a ruler. Specification: $\pm 0.5\%$ or less (100% magnification) Within ± 1 mm with respect to 200 mm. 
8	If the specification is not satisfied, press the C button while pressing the Utility key.
9	[Scanner (Platen) drum clock adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -40 to +40 1 step = 0.05 %
10	Repeat steps 5 to 9 until the specification is satisfied.
11	Press the [PREVIOUS SCREEN] key to return to the Magnification adjustment mode menu Screen.

4. Scanner (EDH) drum clock magnification adjustment

Adjusting the vertical magnification during EDH copy.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Select " [2] Magnification adjustment".
4	[Magnification adjustment mode menu Screen] Press " [4] EDH drum clock adjustment".
5	[EDH drum clock adjustment Screen] Press the [NEXT] or [PREVIOUS] key to select the magnification to be adjusted. The screen rotates from 100 % to 65 % to 200 % to 400 %.
6	Press the [COPY SCREEN] key.
7	Select A3 size paper, set an adjustment chart on EDH, and press the START button.
8	Measure the vertical magnification with a ruler. Specification: ± 0.5% or less (100% magnification) Within ± 1 mm with respect to 190 mm. 
9	If the specification is not satisfied, press the C button while pressing the Utility key.
10	[EDH drum clock adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -40 to +40 1 step = 0.05 %
11	Repeat steps 5 to 10 until the specification is satisfied.

12

Press the **[PREVIOUS SCREEN]** key to return to the Magnification adjustment mode menu Screen.

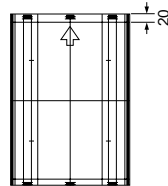
[9] Timing Adjustment

Adjusting the leading edge timing (paper feed restart timing), registration loop amount, and leading edge erasure amount.

1. Select **[2]** Image adjustment in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press "**[3]** Timing adjustment" in the Image adjustment mode menu Screen to display the Timing adjustment mode menu Screen.
3. Timing adjustment consists of the following adjustments:
 - [1]** Printer restart timing adj.
 - [2]** Printer regist loop adjustment
 - [3]** Printer pre-regist adjustment
 - [4]** Printer lead edge timing adj.
 - [5]** Scanner restart timing adj.
 - [6]** EDH restart timing adjustment
 - [7]** EDH regist loop adjustment
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item appears.
5. The Timing adjustment mode menu Screen reappears when adjustment completes.
6. Press the **[PREVIOUS SCREEN]** key in the Timing Adjustment Menu Screen to return to the Image Adjustment Menu Screen.

1. Printer restart timing adjustment

Adjusting the printer restart timing for post cards and other papers.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [3] Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " [1] Printer restart timing adj".
5	[EDH drum clock adjustment Screen] Press the [NEXT] or [PREVIOUS] key to select the magnification to be adjusted. The screen changes as follows; Others → Post card → Tray 1 offset → Tray 2 offset → Tray 3 offset → Tray 4 offset → By-pass offset. Therefore, the specified tray can be offset.
6	Press the [COPY SCREEN] key.
7	Select A3-size paper and press the START button to output the test pattern (No.16).
8	Check the leading edge detection timing. Specification: 20 to 21 mm 
9	If the specification is not satisfied, press the C button while pressing the Utility key.
10	[Printer restart timing adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -30 to +60 1 step = 0.1 mm
11	Repeat steps 5 to 10 until the specification is satisfied.
12	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

2. Printer regist loop adjustment

Adjusting the printer registration loop amount for trays (tray 1, 2 and 3), by-pass tray, and ADU.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 3 " Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " 2 " Printer regist loop adjustment".
5	[Printer regist loop adj Screen] Press the [NEXT] or [PREVIOUS] key to select the item to be adjusted. The screen changes from Tray to By-pass tray to ADU.
6	Press the [COPY SCREEN] key.
7	Press the START button to make a copy.
8	Check the printer registration loop amount.
9	If the printer registration loop amount is not appropriate, press the C button while pressing the Utility key.
10	[Printer regist loop adj. Screen] Enter a value with the numeric keys and press the [SET] key. <ul style="list-style-type: none"> • Tray (tray 1, 2, 3) Setting range: -5 to +5 1 step = 2 ms • By-pass tray Setting range: -10 to +10 1 step = 2 ms • ADU Setting range: -10 to +10 1 step = 2 ms
11	Repeat steps 5 to 10 until the printer registration loop amount is appropriate.
12	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

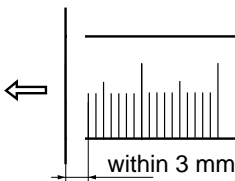
3. Printer pre-registration adjustment

Adjusting the pre-registration loop amount for trays 1, 2, 3, LCT and ADU.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 3 " Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " 3 " Printer pre-registration adjustment".
5	[Printer pre-regist adj. Screen] Press the [NEXT] or [PREVIOUS] key to select the item to be adjusted. The screen changes from Tray 1 to Tray 2 to Tray 3 to Tray 4 (LCT) to ADU.
6	Press the [COPY SCREEN] key.
7	Press the START button to make a copy.
8	Check the printer pre-registration loop amount.
9	If the printer pre-registration loop amount is not appropriate, press the C button while pressing the Utility key.
10	[Printer pre-regist adj. Screen] Enter a value with the numeric keys and press the [SET] key. <ul style="list-style-type: none"> • Tray (tray 1, 2, 3 and LCT) Setting range: -5 to +5 1 step = 2 ms • ADU Setting range: -10 to +10 1 step = 2 ms
11	Repeat steps 5 to 10 until the printer pre-registration loop amount is appropriate.
12	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

4. Printer leading edge timing adjustment

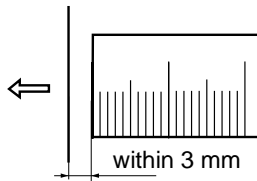
Adjusting the printer leading edge timing (image erasure amount).

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 3 " Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " 4 " Printer lead edge timing adjustment".
5	[Printer lead edge timing adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper, place a scale on the platen glass so that its leading edge is aligned Original stopper plate left, and press the START button.
7	Check the printer leading edge erasure amount. Specification: Within 3mm 
8	If the printer leading edge erasure amount is not appropriate, press the C button while pressing the Utility key.
9	[Printer lead edge timing adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -20 to +40 1 step = 0.1mm
10	Repeat steps 5 to 9 until the printer leading edge erasure amount is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

5. Scanner restart timing adjustment

Adjusting the scanner restart timing during platen copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 3 " Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " 5 " Scanner restart timing adj.".
5	[Scanner (platen) restart timing adj. Screen] Press the [COPY SCREEN] key.
6	Select A3-size paper, place a scale on the platen glass so that its leading edge is aligned Original stopper plate left, and press the START button.
7	Check the restart timing. Specification: Within 3 mm 
8	If the leading edge timing is not appropriate, press the C button while pressing the Utility key.
9	[Scanner (platen) restart timing adj. Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -60 to +20 1 step = 0.1 mm
10	Repeat steps 5 to 9 until the leading edge timing is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

6. EDH restart timing adjustment

Adjusting the scanner leading edge timing during EDH copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [3] Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " [6] EDH restart timing adjustment".
5	[EDH restart timing adj. Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper, set an adjustment chart on EDH, and press the START button.
7	Check the leading edge timing on front and back side. Specification: Within 3 mm
8	If the restart timing is not appropriate, press the C button while pressing the Utility key.
9	[EDH restart timing adj. Screen] Press the [NEXT] or [PREVIOUS] key to select the item to be adjusted. The screen changes from SIDE1 to SIDE2.
10	Enter a value with the numeric keys and press the [SET] key. Setting range: -50 to +50 1 step = 0.1 mm
11	Repeat steps 5 to 10 until the leading edge timing is within specification.
12	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu Screen.

7. EDH regist loop adjustment

Adjusting the registration loop amount during EDH copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [3] Timing adjustment".
4	[Timing adjustment mode menu Screen] Press " [7] EDH regist loop adjustment".
5	[EDH regist loop adjustment Screen] Press the [COPY SCREEN] key and then switch to Both side - Single side copy mode.
6	Select A3 size paper, set an adjustment chart on EDH, and press the START button.
7	Check the loop amounts on the front and back side.
8	If the registration loop amount is not appropriate, press the C button while pressing the Utility key.
9	[EDH regist loop adjustment Screen] Press the [NEXT] or [PREVIOUS] key to select the item to be adjusted. The screen changes from SIDE1 to SIDE2.
10	Enter a value with the numeric keys and press the [SET] key. Setting range: -10 to +10 1 step = 0.5 mm
11	Repeat steps 5 to 10 until the registration loop amount is within specification.
12	Press the [PREVIOUS SCREEN] key to return to the Timing adjustment mode menu screen.

[10] EDH Adjustment

Performing EDH density adjustment, EDH original size adjustment, EDH sensitivity adjustment, and EDH skew offset adjustment.

1. Select **[2]** Image adjustment in the 36 Mode Menu Screen and display the Image adjustment mode menu Screen.
2. Press **[4]** EDH adjustment in the Image Adjustment Menu Screen and display the EDH adjustment mode menu Screen.
3. EDH adjustment consists of the following items:
 - [1]** EDH density adjustment
 - [2]** EDH original size adjustment
 - [3]** EDH sensor sensitivity adjustment
 - [4]** EDH Incline offset adjustment
4. Press the number button corresponding to the item to adjust.
The adjustment screen of the selected item appears.
5. The EDH adjustment mode menu Screen reappears when adjustment completes.
6. Press the **[PREVIOUS SCREEN]** key in the EDH adjustment mode menu Screen to return to the Image adjustment mode menu Screen.

1. EDH density adjustment

When the original reader slit glass is replaced, the density when reading originals with the EDH must be adjusted.

Preparation: Wipe the original reader slit glass clean. Check that the white chart is not dirty or folded.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [4] EDH adjustment".
4	[EDH adjustment mode menu Screen] Press " [1] EDH density adjustment".
5	[EDH density adjustment Screen] Set white chart on EDH (Caution 1).
6	Press the [Start] key. EDH density is adjusted automatically. When adjustment completes, a message appears on the screen.
7	If an error message is displayed, repeat steps 5 and 6 (Caution 2).
8	Press the [PREVIOUS SCREEN] key to return to the EDH adjustment mode menu Screen.

Caution1: Be sure to set the white chart in A4 orientation.

Caution2: If the error message appears repeatedly, there is a possibility of scanner-system mechanical, optical, or electrical adjustment error or parts defect.

2. EDH original size adjustment

Perform this adjustment when the EDH original size detection does not operate properly or when replacing the EDH control board.

Caution: EDH original size adjustment consists of A4/8.5 x 11 and B6R/5.5 x 8.5R.

Use the **[NEXT]** or **[PREVIOUS]** key to select the desired adjustment item.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [4] EDH adjustment".
4	[EDH adjustment mode menu Screen] Press " [2] EDH original size adjustment".
5	[EDH original size adj. Screen] Press the [NEXT] or [PREVIOUS] key to select original size to adjust. The screen changes between A4/8.5 x 11 and B6R/5.5 x 8.5R.
6	Set the original of the selected size on EDH and press the [Start] key. EDH original size is adjusted automatically.
7	Repeat steps 5 and 6 and adjust both sizes.
8	Press the [PREVIOUS SCREEN] key to return to the EDH adjustment mode menu Screen.

3. EDH sensor sensitivity adjustment

Perform this adjustment when replacing the EDH control board.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [4] EDH adjustment".
4	[EDH adjustment mode menu Screen] Press " [3] EDH sensor sensitivity adjustment".
5	[EDH sensor sensitivity adjustment Screen] Press the [Start] key. EDH sensitivity is adjusted automatically.
6	Press the [PREVIOUS SCREEN] key to return to the EDH adjustment mode menu Screen.

4. EDH skew offset adjustment

Perform this adjustment when replacing the EDH control board.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [4] EDH adjustment".
4	[EDH adjustment mode menu Screen] Press " [4] EDH Incline offset adjustment".
5	[EDH Incline offset adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3 size paper, set an adjustment chart on EDH, and press the START button.
7	Check the EDH skew offset amount. Specification: 0.5 %
8	If the EDH incline offset amount is not appropriate, press the C button while pressing the Utility key.
9	[EDH Incline offset adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -60 to +60 1 step = 0.05 %
10	If the EDH skew offset amount is not within specification, repeat steps 5 to 9.
11	Press the [PREVIOUS SCREEN] key to return to the EDH adjustment mode menu Screen.

[11] Centring Adjustment

Perform this adjustment to center the image in the paper feed direction.

1. Select " **[2]** Image adjustment in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press " **[5]** Centring adjustment" in the Image adjustment mode menu Screen to display the Centring adjustment menu screen.
3. Centring adjustment consists of the following:
 - 1 Printer centring adjustment
 - 2 Scanner centring adjustment
 - 3 EDH centring adjustment
4. Press the button corresponding to the item to adjust.
The adjustment screen of the selected item appears.
5. The Centering adjustment mode menu Screen reappears when adjustment completes.
6. Press the **[PREVIOUS SCREEN]** key in the Centring adjustment menu screen to return to the Image adjustment mode menu Screen.

1. Printer Centring Adjustment

Adjusting the printer centring.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 5 " Centring adjustment".
4	[Centring adjustment mode menu Screen] Press " 1 " Printer centring adjustment".
5	[Printer centring adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3-size paper and press the START button to output the test pattern (No.16).
7	Fold A3 size paper in half in the short edge (landscape) orientation and check whether the lines on the left and right overlap completely. Specification: ± 1 mm or less
8	If the printed image is not appropriate, press the C button while pressing the Utility key.
9	[Printer centring adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -64 to +63 1 step = 0.1 mm
10	Repeat steps 5 to 9 until the offset is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Centring adjustment mode menu Screen.

2. Scanner centring adjustment

Adjusting the scanner (platen) centring.

Preparation: Printer centring adjustment must be completed before performing this adjustment.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 " Image adjustment".
3	[Image adjustment mode menu Screen] Press " 5 " Centring adjustment".
4	[Centring adjustment mode menu Screen] Press " 2 " Scanner centring adjustment".
5	[Scanner (Platen) centring adjustment Screen] Press the [COPY SCREEN] key.
6	Select A3-size paper, set a test chart GTC-003 or 004 on the original glass, and press the START button.
7	Fold A3 size paper in half in the short edge (landscape) orientation and check whether the lines on the left and right overlap completely. Specification: ± 2 mm
8	If the offset is not within specification, press the C button while pressing the Utility key.
9	[Scanner (Platen) centring adjustment Screen] Enter a value with the numeric keys and press the [SET] key. Setting range: -30 to +30 1 step = 0.1 mm
10	Repeat steps 5 to 9 until the offset is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Centring adjustment mode menu Screen.

3. EDH centring adjustment

Adjusting the EDH copy centering.

The adjustment items are as follows:

- Small size front side(B5R)
- Small size back side(B5R)
- Large size front side(A3)
- Large size back side(A3)

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [5] Centring adjustment".
4	[Centring adjustment mode menu Screen] Press " [3] EDH centring adjustment".
5	[EDH centring adj. Screen] Press the [COPY SCREEN] key and enter Both side - Single side copy mode.
6	Load A3-size paper in tray 1, place small size or large size original on EDH, and press the Start button.
7	Fold the paper in half at the center and check whether the lines on the left and right overlap completely. Specification: ± 1 mm
8	If the offset is not within specification, press the C button while pressing the Utility key.
9	[EDH centring adj. Screen] Press the [NEXT] or [PREVIOUS] key to select the item to be adjusted. SIDE1(small) → SIDE2(small) Æ SIDE1(large) → SIDE2(large)
10	Enter a value with the numeric keys and press the [SET] key. Setting range: -30 to +30 1 step = 0.1 mm
11	Repeat steps 5 to 10 until the centering is within specification.
12	Press the [PREVIOUS SCREEN] key to return to the Centring adjustment mode menu Screen.

[12] Distortion adjustment (Copier)

This is to correct distortion during platen/EDH copying.

There are four adjustment items as follows:

- Scanner (platen) distortion (main scan)
- Scanner (platen) distortion (sub-scan)
- Scanner (EDH) distortion (main scan)
- Scanner (EDH) distortion (sub-scan)

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Press " [6] Warp adjustment (Copier)".
4	[Scanner warp adj. Screen] Press the [COPY SCREEN] key.
5	Select A3 size paper. To check the platen, set an adjustment chart on the original glass. To check EDH, set it on EDH.
6	Check for platen copy distortion or EDH copy distortion. Allowable warp range: The difference in lengths of two diagonals of a 200 mm square must be within 1.4 mm.
7	If the platen copy distortion or EDH copy distortion is not within specification, press the Utility key while pressing the Utility key.
8	[Scanner warp Adj. Screen] Press the [NEXT] or [PREVIOUS] key to select the desired adjustment item.
9	Enter a value with the numeric keys and press the [SET] key. Range of setting: -50 to +50 1 step = 0.05 %
10	Repeat steps 6 to 9 until the distortion is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Image adjustment mode menu Screen.

[13] Non-image area erase check

When this machine is installed in a place or is moved to another location, research should be conducted on the conditions under which the machine is placed.

Preparation: EDH must be opened.

Nothing should be put on the original glass. The original glass must be clean and transparent.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 2 Image adjustment".
3	[Image adjustment mode menu Screen] Select " 7 Non-image area erase check".
4	[Non-image area erase check Screen] Open the EDH, and press the [Start] key.
5	Confirm that a message indicating that it operated normally is displayed in the message display. When a message indicating it did not operate properly is displayed, refer to Reference 1 shown below. Then, perform the non-original automatic erasure installation research again.
6	Press the [PREVIOUS SCREEN] key to return to the Image adjustment mode menu Screen.

Reference 1:

Here are measures to be taken when the following error messages are indicated..

<Error message 1>

Adjust for Extreme Brightness. In many cases, the Non-image-area-erase function will not operate correctly. Please confirm "adjustment" - "36 mode" columns of the Service Hand book.

<Countermeasure1>

If you use the non-original erasure function, or copy originals that have a dark background using the non-original erasure method, relatively infrequently, use the machine in its present installation environment.

If, however you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it,

then carry out the installation survey once again.

<Error message2>

A datum with potential not to function non-image-area-erase is found.

Please confirm "adjustment" - "36 mode" columns of the Service Hand book.

<Countermeasure2>

If you use the non-original erasure function relatively infrequently, you can use the machine in its present installation environment.

If, however you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again. In this case, if there is a bright light source, such as a fluorescent light, directly above the machine, reconsider the installation location and direction, or take steps to block off the light from the light source (by using a cover, for example), then carry out the installation survey once again.

[14] Recall standard data (Image adjustment)

Restoring image adjustment settings to standard values (data after process adjustment).

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [2] Image adjustment".
3	[Image adjustment mode menu Screen] Select " [8] Recall standard data".
4	[Recall standard data Screen] Press the [YES] key. Various data is restored to standard values.
5	Press the [PREVIOUS SCREEN] key to return to the Image adjustment mode menu Screen.

[15] Running Test Mode

Testing continuous copy operation.

Select " **[3]** Running test mode" in the Adjustment mode menu Screen.

This adjustment consists of the following items:

- [1]** Intermittent copy mode
In this mode, the machine goes into the copy ready state after completing a set number of copy operation, waits 0.5 sec, and then repeats the same operation.
- [2]** Paperless running mode
In this mode, the machine makes copies at approximately the same timing as for normal copy without performing paper detection or jam detection. In addition, similar to intermittent copy mode, the machine goes into the copy ready state after completing a set number of copy operation, waits 0.5 sec, and then repeats the same operation.
- [3]** Paperless mode
In this mode, the machine makes copies at approximately the same timing as for normal copy without performing paper detection or jam detection.
- [4]** Paperless endless mode
In this mode, the copy quantity is set to infinity. In addition, similar to Paperless mode, the machine makes copies at approximately the same timing as for normal copy without performing paper detection or jam detection.
- [5]** Running mode
This mode consists of Paperless endless mode with repetitive optical scan and auto paper feed tray change.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [3] Running test mode".
3	[Running test mode menu Screen] Press mode keys [1] to [5] .
4	[Copy Screen] Press the START button.
5	Check the copy operation and then press the STOP button to stop.
6	Turn the main switch OFF.


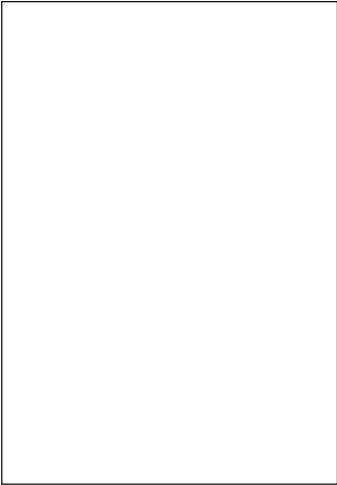
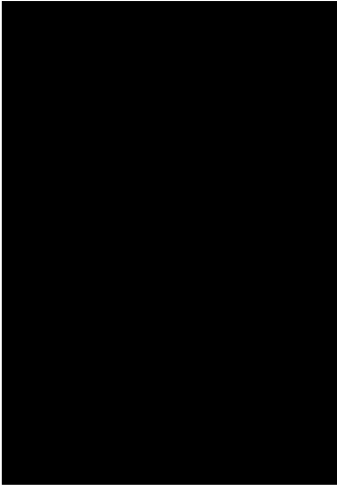
[16] Test pattern output mode

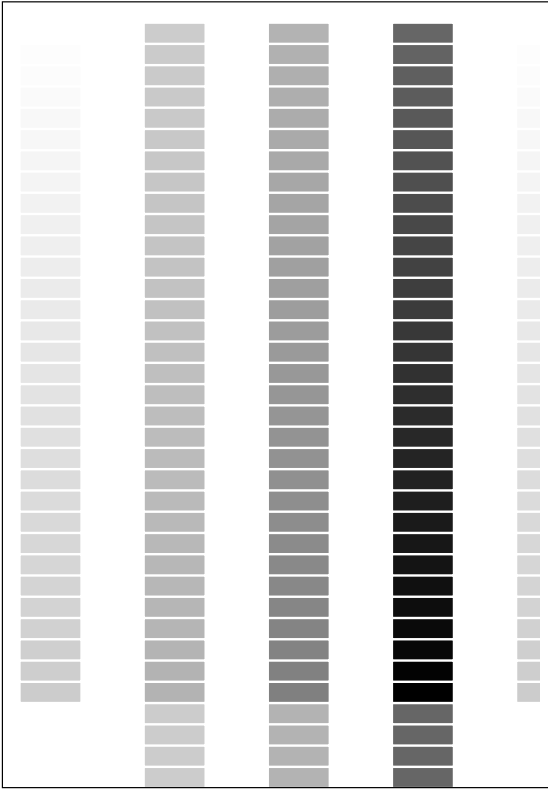
Output test pattern.

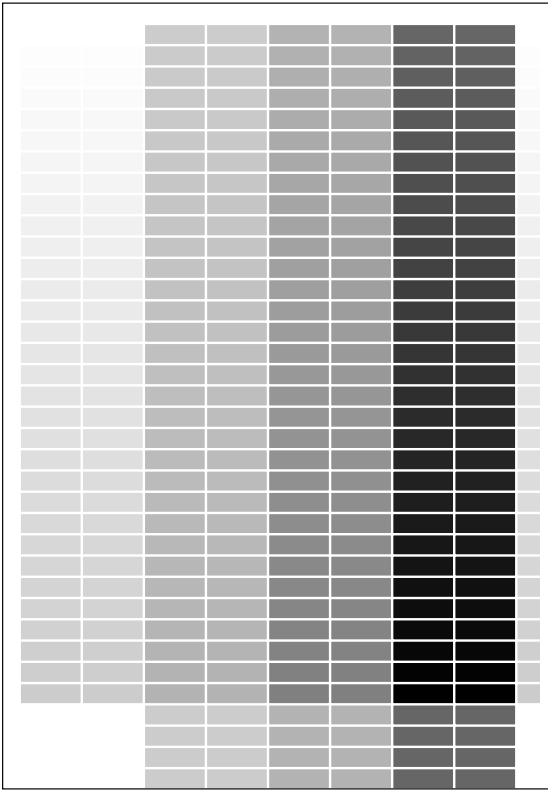
Select " **[4]** Test pattern output mode" in the Adjustment mode menu Screen to display the Test pattern output mode screen.

Caution: Do not touch any mode that is not specifically described.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [4] Test pattern output mode".
3	[Test pattern output mode Screen] Use the numeric keys to enter the number of the test pattern to output and press the [SET] key.
4	Press the [COPY SCREEN] key.
5	[Copy Screen] Select A3 size paper and press the START button to output the test pattern.
6	To output another test pattern, press the C button while pressing the Utility key and repeat steps 3 to 5.
7	Press the [PREVIOUS SCREEN] key to end.

No.1	Overall halftone
<div><div>Check item</div><div><div><div>● When density is set to 70 (halftone)</div><div>If there are white stripes, black stripes, or uneven density, determine whether the fault is with the scanner or the printer.</div></div><div><div>● When density is set to 0 (white)</div><div>If the test pattern is blurred, determine whether the fault is with the scanner or the printer.</div></div><div><div>● When density is set to 255 (black)</div><div>If the density is light, determine whether the fault is with the scanner or the printer.</div></div></div><div><div>* The above density settings are typical values. See [16] Test Pattern Density Setting for more information on density setting.</div></div></div>	
<div><div>Test patterns</div><div><div>DENSITY SET TO 70</div><div>DENSITY SET TO 00</div><div>DENSITY SET TO 255</div></div><div><div></div><div></div><div></div></div></div>	

No.2	Gradation pattern
<div><div>Check item</div><div><p>f the test pattern is blurred or the density is light, determine whether the fault is with the processing system or with γ correction. If the copy image is abnormal despite this test pattern being normal, either the image processing system or the scanner system is abnormal.</p></div></div>	
<div><div>Test patterns</div><div></div></div>	

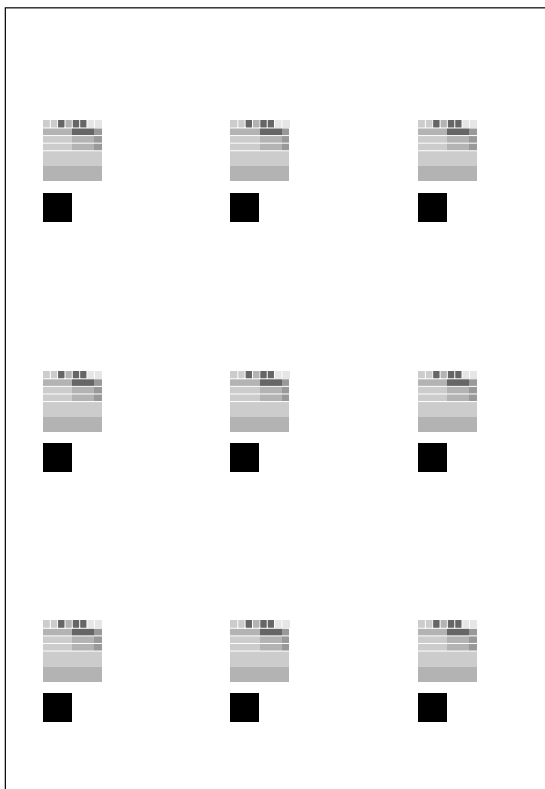
No.3	Gradation pattern
<div><div>Check item</div><div>If the test pattern is abnormal, check whether the two lasers are emitting light normally.</div></div>	
<div><div>Test patterns</div><div></div></div>	

2 ADJUSTMENT

Check item

If the test pattern is abnormal, check to see if position correction of the two laser beams is normal.

Test patterns



No.16	Linearity evaluation pattern
<div><div>Check item</div><div>Use this test pattern to determine whether the fault is with the scanner or the printer. The printer horizontal magnification, vertical magnification, tilt, and leading edge timing can be checked. If the copy image is defective despite no abnormality in the test pattern, the scanner is at fault.</div><div>Note:<div>Loss of the image occurs in test pattern when printing on paper other than A3 paper.</div></div></div>	
<div><div>Test patterns : Sample of A3 paper output</div><div><div><div>Edge of paper</div><div>31mm</div><div>237mm</div><div>Edge of paper</div><div>20mm</div><div>205.7mm</div><div>190mm</div><div>190mm</div><div>280mm</div><div>280mm</div></div></div></div>	

[17] Test pattern density setting

Setting the test pattern density.

Select “ **5** Test pattern density setting” in the Adjustment mode menu Screen to display the Test pattern density setting Screen.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press “ 5 Test pattern density setting”.
3	[Test pattern density Screen] Use the numeric keys to enter a number and press the SET key. Setting range: 0 to 255
4	Press the COPY SCREEN key.
5	Press the START button to output a test pattern.
6	To output another test pattern, press the C button while pressing the Utility key and repeat steps 3 to 5.
7	Press the PREVIOUS SCREEN key to end.

[18] Finisher adjustment

Adjusting the finisher, cover sheet tray, and trimmer.

1. Select “ **6** Finisher adjustment” on the Adjustment mode menu Screen to display the Finisher adjustment mode menu Screen.
2. Finisher adjustment items are as follows:
 - 1** Stapling & Folding stopper adj.
 - 2** Folding stopper adjustment
 - 3** Cover sheet size adjustment
 - 4** Trimmer stopper adjustment
 - 5** Punch adjustment
 - 6** Z-folding position adjustment
3. Press the number key corresponding to the adjusted.
The adjustment screen for the selected adjustment item appears.
4. When the adjustment is complete, the Finisher adjustment mode menu Screen appears again.
5. Press the **PREVIOUS SCREEN** key of the Finisher adjustment menu to return to the Adjustment mode menu Screen.

1. Stapling and Folding stopper adjustment (FN-7 only)

Adjusting the stapling position when stapling and folding mode.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 6 " Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " 1 " Stapling & Folding stopper adjustment".
4	[Staple and Folding stopper adjustment Screen] Press the [COPY SCREEN] key.
5	Set paper in the tray, set originals on EDH, and press the START button.
6	Check the paper center and stapling position. Specification: ± 1 mm
7	If the stapling position is not within specification, press the C button while pressing the Utility key.
8	[Staple and Folding stopper adjustment Screen] Press the [NEXT] or [PREVIOUS] key to select a desired paper size.
9	Enter a value with numeric keys and press the [SET] key. Setting range: -128 to +127 1 step = 0.1 mm
10	Repeat steps 4-9 until the stapling position is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Finisher adjustment mode menu Screen.

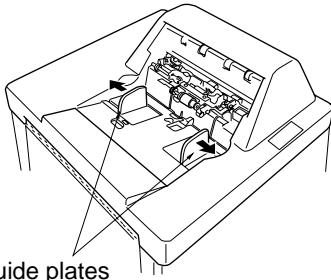
2. Folding stopper adjustment (FN-7 only)

Adjusting the folding position when stapling and folding or folding mode.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 6 " Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " 2 " Folding stopper adjustment".
4	[Folding stopper adjustment Screen] Press the [COPY SCREEN] key.
5	Set paper in the tray, set originals on EDH, and press the START button.
6	Check the paper center and folding position. Specification: ± 1 mm
7	If the folding position is not within specification, press the C button while pressing the Utility key.
8	[Folding Stopper Adjustment Screen] Press the [NEXT] or [PREVIOUS] key to select a desired paper size.
9	Enter a value with numeric keys and press the [SET] key. Setting range: -128 to +127 1 step = 0.1 mm
10	Repeat steps 4-9 until the folding position is within specification.
11	Press the [PREVIOUS SCREEN] key to return to the Finisher adjustment mode menu Screen.

3. Cover sheet tray size adjustment (Cover Inserter C only)

This adjustment should be performed when the cover sheet tray size cannot be detected properly and when centring adjustment for cover sheet tray is performed.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [6] Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " [3] Cover sheet tray size adjustment".
4	[Cover sheet tray size adj. Screen] Press [NEXT] or [PREVIOUS] key to select the tray to be adjusted.
5	Move the side guide plates of the cover sheet tray to the outmost positions respectively and press the [Start] key on the LCD. An end message appears on the screen.  side guide plates
6	Press the [PREVIOUS SCREEN] key to return to the Finisher adjustment mode menu Screen.

4. Trimming stopper adjustment (TMG-2 only)

Adjusting the trimming amount.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [6] Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " [4] Trimmer stopper adjustment".
4	[Trimming stopper adjustment Screen] Press the [COPY SCREEN] key.
5	Set paper in the tray, set originals on EDH, and press the Start button.
6	Check the trimming amount. Specification: 2-4 mm Note: Setting a trimming amount of 2 mm or less may cause a trimming error.
7	If the trimming amount is not within specs, press the C button while pressing the Utility key.
8	[Trimming stopper adjustment Screen] Press [NEXT] or [PREVIOUS] key to select a desired paper size.
9	Enter a value with numeric keys and press the [SET] key. Setting range: -99 to +99 1 step = 0.1 mm
10	Repeat steps 4-9 until the trimming amount is within specs.
11	Press the [PREVIOUS SCREEN] key to return to the Finisher adjustment mode menu Screen.

5. Punch vertical position adjustment (PK-3/ZK-2 only)

Adjusting the punching position (vertical).

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [6] Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " [5] Punch adjustment".
4	[Punch adjustment menu Screen] Press " [1] Punch vertical position adj.".
5	[Punch Vertical position adjustment Screen] Press the [COPY SCREEN] key.
6	Set paper in the tray, set originals on EDH, and press the Start button.
7	Check the punch vertical position.
8	If the punch vertical position is not appropriate, press the C button while pressing down the Utility key.
9	[Punch Vertical position adj. Screen] Press the [NEXT] or [PREVIOUS] key to select a desired paper size.
10	Enter a value with numeric keys and press the [SET] key. Setting range: -50 to +50 1 step = 0.1 mm
11	Repeat steps 5-10 until the punch vertical position is appropriate.
12	Press the [PREVIOUS SCREEN] key to return to the Punch adjustment menu Screen.

6. Punch horizontal position adjustment (PK-3/ZK-2 only)

Adjusting the punching position (horizontal).

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " [6] Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " [5] Punch adjustment".
4	[Punch adjustment menu Screen] Press " [2] Punch horizontal position adj.".
5	[Punch Horizontal position adjustment Screen] Press the [COPY SCREEN] key.
6	Set paper in the tray, set originals on EDH, and press the Start button.
7	Check the punch horizontal position. Specification: 10.5 mm
8	If the punch vertical position is not appropriate, press the C button while pressing down the Utility key.
9	Enter a value with numeric keys and press the [SET] key. Setting range: -50 to +50 1 step=0.1 mm
10	Repeat steps 5-9 until the punch horizontal position is appropriate.
11	Press the [PREVIOUS SCREEN] key to return to the Punch adjustment menu Screen.

7. Punch registration loop adjustment (PK-3/ZK-2 only)

Adjusting the registration loop amount.

Step	Operation
1	Enter the 36 mode.
2	[Adjustment mode menu Screen] Press " 6 " Finisher adjustment".
3	[Finisher adjustment mode menu Screen] Press " 5 " Punch adjustment".
4	[Punch adjustment mode Screen] Press " 3 " Punch regist loop adjustment.".
5	[Punch Regist Loop adj. Screen] Press the [NEXT] or [PREVIOUS] key to select "reverse" or "ADU".
6	Set paper in the tray, set originals on EDH, and press the START button.
7	Check the registration loop amount.
8	If the punch registration loop amount is not appropriate, press the C button while pressing the Utility key.
9	[Punch Regist Loop Adj. Screen] Enter a value with numeric keys and press the [SET] key. Setting range: -20 to +20 1 step = 0.8 mm
10	Repeat steps 5-9 until the registration loop amount is appropriate.
11	Press the [PREVIOUS SCREEN] key to return to the Punch adjustment menu Screen.

8. Z-folding position adjustment

Adjust the amount of Z-folding position.

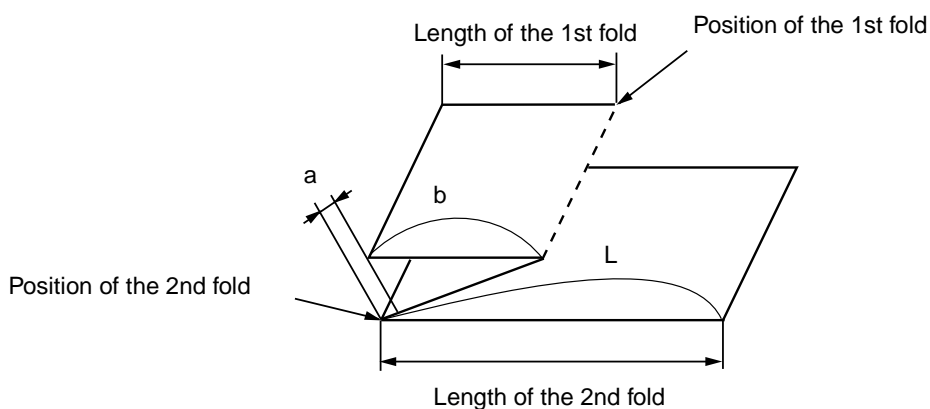
Step	Operation
1	Set to 36 mode.
2	[36 mode menu] Press 6 Finisher adjustment.
3	[Finisher adjustment mode menu] Press 6 Z-folding position adjustment.
4	[Z-folding position adjustment mode menu] Press 1 1st Z-folding position adjustment menu.
5	[1st Z-folding position adjustment] Press the [NEXT] or [PREVIOUS] key to select appropriate size.
6	Use the numeric keys to enter a numerical value, then press the [SET] key. Setting range: -128 to +127 1 step = 0.1 mm
7	Press the [COPY SCREEN] key to return to the Copy screen, and make a copy.
8	Confirm the position of the 1st fold.
9	If the 1st folding position is not properly set, press the C button while holding down the Utility key to return to the adjustment screen.
10	Repeat steps 6 to 9 until the 1st folding position is correctly set.
11	Press the [PREVIOUS SCREEN] key of the adjustment screen to return to the Z-folding position adjustment screen
12	[Z-folding position adjustment screen] Press 2 2nd Z-folding position adjustment menu.
13	[2nd Z-folding position adjustment screen] Press the [NEXT] or [PREVIOUS] key to select appropriate size.
14	Use the numeric keys to enter a numerical value, then press the [SET] key. Setting range: -128 to +127 1 step = 0.1 mm

15	Press the COPY SCREEN key to return to the Copy screen, and make a copy.
16	Confirm the position of the 2nd fold.
17	If the 2nd folding position is not properly set, press the C button while holding down the Utility key to return to the adjustment screen.
18	Repeat steps 13 to 17 until the 2nd folding position is correctly set.

9. Z-folding adjustment value

Unit (mm)

	Deviance on edge (a)	Length of 1st fold (b)	Length of 2nd fold (L) adjustment value	Length of 2nd fold (L) standard value
11 x 17	3.5 ± 1.5	(108)	212	Less than 215
A3	3.5 ± 1.5	(105)	206	Less than 209
8K	3.5 ± 1.5	(97)	191	Less than 194
B4	3.5 ± 1.5	(91)	178	Less than 181
8.5 x 14	-	-	258.6	Less than 261.6



Note:

- Length of the 1st fold is for standard
- The length of the 2nd fold should be the adjustment value.

[19] List Output Mode

Outputting various data.

1. Select " **7** List output mode" in the Adjustment mode menu Screen to display the List output mode menu Screen.
2. List output mode menu consists of the following:
 - 1** Machine management list 1
 - 2** Adjustment data list
 - 3** Black ratio data list
 - 4** Machine management list 2
 - 5** Parameter list
 - 6** Memory dump list
 - 7** Font pattern
3. Press the number key corresponding to the item to output.
The output setting screen for the selected item appears.
4. The List Output Mode Menu Screen reappears after each list is output.
5. Press the **PREVIOUS SCREEN** key in the List output mode menu Screen to return to Adjustment mode menu Screen.

Note: List output screen is not displayed for **3** Machine management list 2 and subsequent items unless address 30-1 is set to 1 with **1** Software DIPSW setting in 25 mode.

47 MODE

[1] 47 Mode / Multi Mode Setting Method

1. 47 Mode

This mode provides self-diagnostic functions (input/output check function) to check and adjust various signals and loads.

2. 47 mode operation

(1) Starting 47 mode

- Turn off the main switch.
- Turn the main switch back on while holding down 4 and 7 of the copy quantity button.
- Check that the 47 mode is started when message "I/O check mode" appears in the first row of the message area.

(2) Input/output check

- Refer to the I/O check code list and use the copy quantity button to enter the code for the desired signal (such as sensor).
- The entered code appears enclosed in <> in the second row of the message area.
- The numbers are shifted left as they are displayed.
- Check the status of the signal displayed as H or L after "IN:" in the second row of the message display area.

Caution: H and L indicate the level of the signal input to PRCB (printer control board). Note the relationship between the status of the input signal source and the message display.

(3) Output check

- Refer to the I/O check code list and use the copy quantity button to enter the code for the desired output load.
- Press the Start button.
Depending on the output, a load will be activated or a signal will be output.

Start button	Code	Description
Before pressing indication	Input	Input signal level
After pressing	Output	Output load operation/signal

(4) Ending 47 mode

- Press the stop button to cancel the operation.
- Turn off the main switch to exit the 47 mode.

Step	Operation
1	Turn on the main switch while holding down 4 and 7 of the copy quantity button.
2	[I/O check mode Screen] Use the copy quantity button to enter the code.
3	Check the input signal check result displayed after "IN:" in the second row of the message area.
4	To perform the output check, press the Start button to check the output load.
5	Press the Stop button to end output check.
6	To perform other checks, enter a new code using the copy quantity button.
7	Turn off the main switch to exit the 47 mode.

Note1: No data appears on the second row of the message area when 47 mode is entered. Message appears when a number is entered.

Note2: Simply enter a new code to switch to another code.

Note3: A newly entered number is written over the previously entered number.

3. Multi mode

This mode is entered from the 47 mode. It enables multiple I/O checks using a single I/O check code.

4. Multi mode operation method

Start the 47 mode and proceed as follows:

- (1) To check the input
 - a. Using the copy quantity button, enter the check code for the desired I/O.
 - b. The 47 mode code appears enclosed in <> in the second row of the message area.
 - c. Press the Utility key.
 - d. Enter the desired multi number using the copy quantity button. (Refer to the multi mode list.)
 - e. The multi number will be displayed enclosed in <>, following the 47 mode code and "-".

I/O check mode < 10-01 > IN: -- OUT: --
--

- f. Press the Utility key.
- g. Check the status of the signal displayed as H or L after "IN:" in the second row of the message display area.
- (2) To check the output
 - a. Press the START button.
 - b. Press the STOP button after checking the output.
- (3) Ending multi mode
 - a. Turn off the main switch to exit the 47 mode (multi mode)

Step	Operation
1	Enter the 47 mode.
2	[I/O check mode Screen] Use the copy quantity button and enter the code.
3	Press the Utility key.
4	Enter the multi number using the copy quantity button.
5	Press the Utility key.
6	Check the input signal check result displayed after "IN:" in the second row of the message area.
7	To perform the output check, press the Start button to check the output load.
8	Press the STOP button to end the output check.
9	Turn off the main switch to exit the 47 mode.

Note1: To check another multi number in the same code, press the P button after completing step 8.



And enter another multi number. A newly entered number is written over the previously entered number.

Note2: To return to the normal 47 mode, press the STOP button while holding down the Utility key after completing step 8. (The screen will return to the 47 mode initial state.)

[2] Adjustment Data Display

Displaying a list of machine adjustment values (factory-set values and current values).

No adjustment (data value change) can be made in this mode.

Step	Operation
1	Enter the 47 mode.
2	[I/O check Screen] Enter 94 with numeric keys. Make sure 94 is displayed in the message display field.
3	Press the Start button.
4	[Adjustment data display Screen] Press the  or  button to display a desired adjustment item.
5	To return to the I/O Check Screen, press the [End] key to return to the I/O Check Mode Screen.

[3] Hard Disk Check

Execute this adjustment to check the total capacity or the remaining capacity of the standard hard disk and when error codes related to the hard disk is detected.

Step	Operation
1	Enter the 47 mode.
2	Enter 99 with numeric keys.
3	<p>(1) Checking the total capacity of the hard disk: Press the Utility key and enter 1 with a numeric key. Make sure 99-01 is displayed in the message display field.</p> <p>(2) Checking the remaining capacity of the hard disk: Press the Utility key and enter 2 with a numeric key. Make sure 99-02 is displayed in the message display field.</p> <p>(3) Checking and recovering bad sectors on the hard disk: Press the Utility key and enter 3 with a numeric key. Make sure 99-03 is displayed in the message display field.</p>
4	Press the START button.

5	(1) When the total capacity of the hard disk is checked: The total capacity of the hard disk is displayed after "OUT:" in the message display field.
	(2) When the remaining capacity of the hard disk is checked: The remaining capacity of the hard disk is displayed after "OUT:" in the message display field.
	(3) When bad sectors on the hard disk are checked and recovered: "NOW" is displayed after "OUT:" in the message display field and bad sector check and recovery start. Several minutes later, "OK" is displayed in the case of normal termination, "NG" is displayed in the case of abnormal termination. When "NG" is displayed, retry bad sector check and recovery. If "NG" is displayed again, replace the hard disk.

Note1: Once the bad sector check and recovery procedure start, it can not be canceled. (The STOP button and mode change key are ineffective.)

Note2: The hard disk is weak against vibration and shock. When moving the copy machine, be sure to remove the hard disk in advance.

[4] Input checklist

Classi- fication	Code	Symbol	Multi mode	Name	Display and Signal Source		
					H	L	
Analog signal	001	TLD		Remaining toner detection signal	Empty	In	
	002	TH5		Drum (internal) temperature detection signal			
	003	TH1		Fixing upper roller temperature detection signal			
	004	TH3		Heat roller temperature detection signal			
	005			Humidity sensor signal			
	006			Dmax MONI signal			
	007			Dmax signal			
	008			γ signal			
	009			Drum potential signal			
	010			Drum jam signal			
Paper feed	011	PS26	1	Tray 1 no paper detection signal		ON	OFF
		PS27	2	Tray 2 no paper detection signal			
		PS28	3	Tray 3 no paper detection signal			
		PS29	4	By-pass feed tray no paper detection signal			
		PS108	5	LCT no paper detection signal			
	012	PS34	1	Tray 1 remaining paper detection signal			
		PS37	2	Tray 2 remaining paper detection signal			
		PS40	3	Tray 3 remaining paper detection signal			
		PS102	4	LCT remaining paper detection signal 1			
		PS103	5	LCT remaining paper detection signal 2			
	013	PS104	6	LCT remaining paper detection signal 3			
		PS105	7	LCT remaining paper detection signal 4			
		PS32	1	Tray 1 paper size detection signal 1			
		PS33	2	Tray 1 paper size detection signal 2			
		PS35	3	Tray 2 paper size detection signal 1			
		PS36	4	Tray 2 paper size detection signal 2			
		PS38	5	Tray 3 paper size detection signal 1			
	014	PS39	6	Tray 3 paper size detection signal 2			
		PS55	7	By-pass feed tray paper size detection signal 1			
		PS56	8	By-pass feed tray paper size detection signal 2			
		014	VR1	1	Tray 1 paper size detection VR signal		0 to 255
	VR2		2	Tray 2 paper size detection VR signal			
	VR3		3	Tray 3 paper size detection VR signal			
	VR4		4	By-pass feed tray paper size detection VR signal			
	015		1	Tray 1 paper size signal	0:11x17,1:A3, 2:B4, 3:8.5x14, 4:A4R, 5:8.5x11R, 6:B5R, 7:8.5x11, 8:5.5x8.5R, 9:A4, 10:A5R, 11:B5, 12:A5, 13:B6R, 14:5.5x8.5, 15:B6, 16:Spesial, 17:F4(8.125x13.25), 18:F4(8x13), 19:F4(8.25x13), 20:F4(8.5x13), 21:postcard		
			2	Tray 2 paper size signal			
			3	Tray 3 paper size signal			
			4	By-pass feed tray paper size signal			
	016	PS20	1	Tray 1 upper limit detection signal		ON	OFF
		PS21	2	Tray 2 upper limit detection signal			
		PS22	3	Tray 3 upper limit detection signal			
		PS23	4	By-pass feed tray upper limit detection signal			
		PS43	5	By-pass feed tray lower limit detection signal			
		PS109	6	LCT upper limit detection signal			
		PS101	7	LCT lower limit detection signal			
	017		1	Tray 1 tray set detection signal			
			2	Tray 2 tray set detection signal			
			3	Tray 3 tray set detection signal			

Classification	Code	Symbol	Multi mode	Name	Display and Signal Source	
					H	L
Paper feed	018	PS14	1	Tray1 pre-registration detection signal	ON	OFF
		PS15	2	Tray2 pre-registration detection signal		
		PS16	3	Tray3 pre-registration detection signal		
Paper feed/Conveyance	020	PS48	1	Tray 1 paper pre-registration detection signal		
		PS50	2	Tray 2 paper pre-registration detection signal		
		PS52	3	Tray 3 paper pre-registration detection signal		
		PS107	4	LCT paper pre-registration detection signal		
	021	PS18	1	Tray 1 paper conveyance detection signal		
		PS53	2	Tray 2 paper conveyance detection signal		
		PS19	3	Tray 3 paper conveyance detection signal		
	022	PS47	1	Tray 1 paper feed detection signal		
		PS49	2	Tray 2 paper feed detection signal		
		PS51	3	Tray 3 paper feed detection signal		
		PS106	4	LCT paper feed detection signal		
	023	PS45	1	Copy paper leading edge detection signal		
		PS54	2	Paper loop detection signal		
		PS44	3	Second paper feed detection signal		
	024	PS2	1	Fixing unit paper ejection detection signal		
		PS61	2	Paper eject detection signal		
		PS57	3	Paper reversal detection signal		
		PS8	4	Paper reverse and conveyance detection signal		
		PS3	5	Fixing unit jam detection signal		
	025	PS17	1	Vertical conveyance jam access door open/close detection signal 2	Open	Close
		PS24	2	Front door open/close detection signal 1 (right front door)		
		PS25	3	Front door open/close detection signal 2 (left front door)		
		MS1,MS2	4	Front door open/close detection SW signal	ON	OFF
		PS100	5	LCT top cover open/close detection signal		
		PS110	6	LCT jam access cover open/close detection signal		
			7	Fixing unit set detection signal		
			8	Drum unit set detection signal		
Optics unit	030	PS5	1	Scanner home position detection signal	ON	OFF
		PS6	2	Exposure home position detection signal		
		PS7	3	—		
		PS4	4	Scanner reversal detection signal 2 (paper feed side)		
	031	PS62	1	APS sensor 1 detection signal		
		PS63	2	APS sensor 2 detection signal		
		PS64	3	APS sensor 3 detection signal		
		PS65	4	APS sensor 4 detection signal		
		PS66	5	APS sensor 5 detection signal		
		PS67	6	APS sensor 6 detection signal		
		PS68	7	APS sensor 7 detection signal		
		PS315	8	APS timing detection signal		
Proper functions	050			LCT identification signal	Enabled	Disabled
	051	SW100		LCT tray down SW detection signal	ON	OFF
	052	C(K)		Key counter detection signal	Yes	No
	053			Power supply identification signal	200 V	100 V
	054	PS41	1	Charging cleaning pad phome position detection signal	ON	OFF
		PS42	2	Charging cleaning pad drive limit detection signal		
		PS11	3	Transfer/separation cleaning pad home position detection signal		
		PS12	4	Transfer/separation cleaning pad drive limit detection signal		

Classification	Code	Symbol	Multi mode	Name	Display and Signal Source					
					H	L				
EDH	060	PS302	1	Original size detection signal 1	Detect	Not Detect				
		PS303	2	Original size detection signal 2						
		PS306	3	Original registration detection signal	ON	OFF				
		PS308	4	Original conveyance detection signal						
		PS309	5	Original reversal detection signal						
		PS307	6	Original ejection detection signal 1						
		PS313	7	Original ejection to reverse detection signal						
		PS314	8	Original ejection detection signal 2						
		PS310	9	Last original detection signal						
		PS301	10	DF open/close detection signal	Detect	Not Detect				
		MS301	11	Cover open/close MS detection signal						
		—	12	Pressure plate open detection signal						
		PS304	13	Jam in original reversal section detection signal						
		PS311	14	Paper skew detection signal 1						
		VR301	15	Original size detection signal 3						
		PS312	16	Paper skew detection signal 2						
FNS	076	PS1	0	Sub tray paper exit detection signal	OFF	ON				
		PS2	1	Tray upper limit detection signal						
		PS3	2	Tray lower limit detection signal						
		PS4	3	FNS entrance detection signal						
		PS5	4	Stacker conveyance passage						
		PS6	5	Paper exit 1						
		PS7	6	Stapler paper exit upper limit detection signal						
		PS8	7	Alignment plate/upper HP						
		PS9	8	Paper exit belt HP detection signal						
		PS10	9	Paper exit 2						
		PS11	10	Stapler movement HP detection signal						
		PS12	11	Paper exit opening						
		PS13	12	Entrance paper detection						
		PS14	13	Stapler rotation HP						
		PS15	14	Tray no paper detection						
		PS18	15	Roller shift HP						
		PS20	16	Stacker no paper detection						
		PS21	17	Stapling and folding stopper release motor HP						
		PS22	18	Folding knife HP						
		PS23	19	Stapling and folding stopper HP						
		PS24	20	Alignment plate/lower HP						
		PS25	21	Folding paper exit						
		PS26	22	Folding passage/2						
		PS27	23	Folding stopper HP						
		PS28	24	Folding passage/1						
		TU		PS101			25	Entrance	ON With paper	OFF No paper
				PS102			26	Conveyance		
				PS103			27	Stopper HP	ON	OFF
	PS104			28	Stopper release HP					
	PS105			29	Press HP	OFF	ON			
PS106	30			Trimmer HP	ON	OFF				
FNS		FM1,2,3	31	Fan lock detection (countermeasure against tacking) (FN-7 only)	Lock	Not lock				
		M1	32	Motor lock signal						
		M7	33	Motor lock signal						
		M20	34	Motor lock signal						
TU		M101	35	Conveyance motor lock signal						

Classification	Code	Symbol	Multi mode	Name	Display and Signal Source	
					H	L
FNS	076	—	36	—		
		—	37	Folding unit	No unit	With unit
TU		PS112	38	Pusher	ON	OFF
FNS		—	39	PI connecting	No PI	With PI
		—	40	Stapler/R Cartridge (FN-115 only)	50 sheet	100 sheet
		PS31	41	Stapler/R HP Signal (FN-115 only)	OFF	ON
		PS40	42	Stapler/R staple absent signal (FN-115 only)		
		—	43	Stapler (R) Ready signal	Busy	Ready
		—	44	Stapler (R) Busy signal	Ready	Busy
		—	45	Stapler (R) Clear-request signa	Normal	Demand
		—	46	PI start key	OFF	ON
		—	47	PI mode key		
		—	48	Stapler/F Cartridge (FN-115 only)	50 sheet	100 sheet
		PS34	49	Stapler/F HP Signal (FN-115 only)	OFF	ON
		PS37	50	Stapler/F staple absent signal (FN-115 only)		
		—	51	Stapler (F) Ready signal	Busy	Ready
		—	52	Stapler (F) Busy signal	Ready	Busy
		—	53	Stapler (F) Clear-demand signal	Normal	Demand
PI		PS208	54	Sheet set	OFF No paper	ON With paper
		PS209	55	Pre no paper		
		PS201	56	Sheet passage		
		PS202	57	No sheet		
		PS203	58	Sheet tray lower limit	OFF	ON
		PS204	59	Sheet tray upper limit		
		PS205	60	Sheet size (small)	OFF	ON
		PS206	61	Sheet size (large)	No paper	With paper
FNS		PS207	62	Paper exit cover open/close detection	Open	Close
		PS50	63	Sub-tray full detection	OFF	ON
		PS29	64	Folding full	With paper	No paper
PU/PZ		—	65	Punch scraps box setting detection	OFF	ON
—		66	Punch scraps box full detection			
FNS		MS1	67	Interlock detection signal	Open	Close
TU		MS2	68	Trimmer front door interlock detection signal		
		PS110	69	Upper limit	ON	OFF
		PS111	70	Lower limi		
		PS108	71	Exit	OFF	ON
		PS107	72	Paper scraps box detection		
		PS109	73	Paper scraps full		
		PS113	74	Stacker full		
PU/PZ		—	75	Trimmer connection detection	With TU	No TU
		M4	76	Punch motor error detection	Normal	Abnormal
		MS	77	Front door MS	Open	Close
		PS5	78	Punch HP	ON	OFF
PZ		PS3	79	1st folding stopper HP	OFF	ON
PU/PZ		—	80	Paper edge PS (leading/trailing/side edge sensor 1)	ON With paper	OFF No paper
		—	81	Paper edge PS (side edge sensor 2)		
		—	82	Paper edge PS (side edge sensor 3)		
		—	83	Paper edge PS (side edge sensor 4)		
		—	84	Paper edge PS (side edge sensor 5)	OFF	ON
		PS4	85	Punch shift HP		
		PS1	86	Passage	No paper	With paper

Classi- fication	Code	Symbol	Multi mode	Name	Display and Signal Source	
					H	L
PZ	076	PS2	87	2nd folding stopper HP	OFF	ON
TU		PS114	88	Stacker door	Open	Close
PU		PS8	89	Exit	With paper	No paper
PZ		PS8	89	Exit	No paper	With paper
PU/PZ		—	90	Fan motor locking detection	ON	OFF
		—	91	Z-folding conveyance motor locking detection	OFF	ON
ADU	080	PS9	1	ADU paper conveyance detection signal	ON	OFF
		PS46	2	Paper at ADU exit detection signal		
		PS58	3	ADU paper reversal detection signal		
		PS59	4	ADU paper conveyance slowdown timing detection signal		
		PS10	5	ADU handle release detection signal		
		PS13	6	ADU no paper detection signal		
		PS60	7	ADU paper feed detection signal		

[5] Output checklist

Classification	Code	Symbol	Multi mode	Name	Cannot be set or changed in field
Analog signal	000	L1		*1 Exposure lamp	
	001	M15		Toner supply motor	
	002	HV1		Charging corona unit	×
	003	HV2		Transfer corona unit	×
	004	HV2		Separation corona unit (AC+DC)	
	005			D max LED	×
	006			γ LED	×
	007			Jam detection LED	
	008	HV1		Transfer corona unit installation guide plate	×
	009	HV1		Bias	
Paper feed	020		M	First paper feed SD 1: Tray 1 2: Tray 2 3: Tray 3 4: LCT 5: By-pass paper feed tray	
	021		M	Paper feed MC 1: Tray 1 2: Tray 2 3: Tray 3 4: LCT 5: Vertical conveyance	
	022		M	First paper feed MC 1: Tray 1 2: Tray 2 3: Tray 3 4: LCT	
	023		M	Tray up motor/LCT UP/DOWN motor 1: Tray 1 2: Tray 2 3: Tray 3 4: LCT UP drive 5: LCT DOWN drive 6: By-pass UP 7: By-pass DOWN	
	024		M	Lock SD 1: Tray 1 2: Tray 2 3: Tray 3	
	025	MC1		Secound paper feed MC	
	026	M6	M	Loop roller drive motor 1: Fast forward 2: Slow forward 3: Fast backward 4: Slow backward	
	027	M10	M	Paper exit motor 1: Fast 2: Slow	
	028		1	1: Paper feed motor 2: LCT paper feed motor	
	029	SD4		Separation claw SD	
Optics unit	031	M13		*2 Scanner drive motor	
	032	M17		*3 Polygon motor 0: 400 dpi 1: 600dpi	
	034			*4 Shading correction 0: 400 dpi 1:600dpi	

Caution: When the START key is pressed, "Watch input?" **YES** and **NO** appears. When **YES** or **NO** is selected for each code, the following operation is performed:

- *1 **YES** Turns ON the exposure lamp and scanner cooling fan.
NO Turns ON the exposure lamp for 10 minutes.
- *2 **YES** Performs HP search and scanner to-and-fro operations.
NO Moves the scanner 10mm to the right.
- *3 **YES** Turns ON the polygon motor and write unit cooling fan.
NO Turns ON the polygon motor for 30 seconds.
- *4 **YES** Performs HP search and shading operations.
NO Moves the scanner 10mm to the right.

Classification	Code	Symbol	Multi mode	Name	Cannot be set or changed in field
Main body	040	M1		Main motor	
	041	M2		Drum drive motor	
	042		M	Fan motor 1: Scanner cooling fan 2: Write section cooling fan 1 (high) 3: Write section cooling fan 1 (low) 4: Developing suction 5: — 6: Main unit cooling fan 1 (high) 7: Main unit cooling fan 1 (low) 8: Main unit cooling fan 2 (high) 9: Main unit cooling fan 2 (low) 10: Main unit cooling fan 3 (high) 11: Main unit cooling fan 3 (low) 12: Fixing unit cooling fan 13: Write section cooling fan 2 (high) 14: Write section cooling fan 2 (low) 15: Polygon cooling fan	
	043		M	Counter 1: Total counter 2: Key counter	
	045	M16	M	6: Cleaning web drive motor	
	046	M23	M	Charger cleaning motor 0: To-and-fro operation 1: Move to rear 2: Move to front	
	047	M18	M	Transfer/separation cleaning motor 0: To-and-fro operation 1: Move to rear 2: Move to front	
	048			Control panel LED test (turn on all lights)	
	049	M18/M23		Charger cleaning or transfer/separation cleaning motor to-and-fro operation	
	050	M2/M3/M14		Drum/developing/blade motor	
	051	PCL		PCL	
	052	TSL		TSL	
	054	M11		Toner supply motor/1	
	055	—		Message test	
	056	JAMIB		Jam indicator board LED test (turn on all lights)	
	060	M302	1	Original feed motor (forward)	
			2	Original feed motor (backward)	
		M301	3	Original conveyance motor (forward)	
			4	Original conveyance motor (backward)	
		M304	5	Original exit motor 1 (forward)	
			6	Original exit motor 1 (backward)	
		M305	7	Original exit motor 2 (forward)	
			8	Original exit motor 2 (backward)	
		M303	9	Tray up motor (forward)	
			10	Tray up motor (backward)	
		SD302	11	Pressure roller release SD	
		SD301	12	Flapper drive SD	
		SD303	13	Original exit gate SD	
		SD304	14	SDF switching SD	
		FM301	15	ADF fan	

Classification	Code	Symbol	Multi mode	Name	Cannot be set or changed in field
FNS	075	M1	1	FNS conveyance motor	
		M2	2	Roller shift motor (HP search)	
			3	Roller shift motor (shift position transfer)	
			4	Roller shift motor (1 rotation)	
		M3	5	Tray up-down motor (HP search)	
			6	Tray up-down motor (Move to lower limit)	
			7	Tray up-down motor (Up-down operation with only few sheets at staple mode)	
		M5	8	Alignment plate motor/ upper (HP search)	
		M7	9	Paper exit roller motor (staple mode HP search)	
			10	Paper exit roller motor (reverse rotation)	
		M8	11	Paper exit opening motor HP search	
			12	Paper exit opening motor open slot transfer	
		M21/M22	13	Stapler unit (R) (initial)	
			14	Stapler unit (R) (staple operation)	
		M23/M24	15	Stapler unit (F) (initial)	
			16	Stapler unit (F) (staple operation)	
		M11	17	Stapler movement motor HP search (Move to double staple position)	
			18	Stapler movement motor (Move to single staple position for A4)	
		M13	19	Stacker entrance motor	
		M14	20	Stapling and folding stopper motor (HP search)	
		M15	21	Alignment plate motor/lower (HP search)	
		M18	22	Folding stopper motor (HP search)	
		M19	23	Folding knife motor (HP search)	
		M20	24	Folding conveyance motor	
		M17	25	Stapling and folding stopper release motor (HP search)	
			26	Stapling and folding stopper release motor (set)	
			27	Stapling and folding stopper release motor (release)	
		SD1	28	Gate solenoid	
		SD2	29	Sub-tray paper exit solenoid	
		SD6	30	Sub-tray deceleration solenoid	
		SD4	31	Paper exit opening solenoid	
		SD5	32	By-pass solenoid	
		M5	33	Alignment plate motor /upper Open (A4 position) enable only from HP position	
			34	Alignment plate motor /upper Close (A4 position) enable only from HP position	
			35	Alignment plate motor/upper rocking (enable only from Open position)	
		M15	36	Alignment plate motor/lower Open (A4 position) enable only from HP position	
			37	Alignment plate motor/lower Close (A4 position) enable only from HP position	
			38	Alignment plate motor/lower rocking (enable only from Open position)	
		M14	39	Stapling and folding stopper motor (Move to A4R position transfer)	
		M18	40	Folding stopper motor (A4R position transfer)	
		—	50	—	
		—	51	—	
		—	52	—	
		—	53	—	
		—	54	—	

Classification	Code	Symbol	Multi mode	Name	Cannot be set or changed in field
TU	075	M101	55	Conveyance motor	
		M102	56	Trimmer motor (forward)	
			57	Trimmer motor (backward)	
			M103	57	Stopper motor (HP search)
		M104	59	Stopper release motor (HP search)	
			60	Stopper release motor (release)	
			61	Stopper release motor (setting)	
		M105	62	Press motor (HP search)	
63			Press motor (press)		
PI		MC201/SD201	64	Paper feed clutch	
		M201	65	Sheet tray motor HP search (Move to lower limit)	
			66	Sheet tray motor (Move to upper limit)SD	
SD201		67	Paper feed solenoid		
		M107	68	Pusher motor (HP search)	
			69	Pusher motor (pusher release)	
M106		70	Holder motor (HP search)		
		71	Holder motor (Move to lower limit)		
		PU	M1	72	Main motor
PU/PZ		M1/M6	72	Registration motor and conveyance motor	
		M2	73	1st stopper motor (HP search)	
		M	74	2nd stopper motor (HP search)	
		SD2	75	Gate Solenoid/U	
		SD1	76	Gate Solenoid (PU)/Gate solenoid/L (PZ)	
		MC1	77	Punch clutch	
		M4	78	Punch motor(Panching operarion)	
		M5	79	Punch shift motor (HP search)	
		—	80	—	
		M7	81	Punch scraps conveyance motor	
	M10	82	Main motor cooling fan(PU)/		
			Conveyance motor cooling fan(PZ)		
	FNS	—	83	—	
—		84	—		
—		85	—		
—		86	—		
—		87	—		
—		88	—		
—		89	—		
—		90	—		
—		91	—		
—		92	—		
—		93	—		
—		94	—		
—		95	—		
—		96	—		
—		97	—		
—		98	—		
		99	FNS Paper less running mode		

Classification	Code	Symbol	Multi mode	Name	Cannot be set or changed in field
ADU	080		M	1: Paper gate solenoid 2: ADU lock solenoid 3: Fixing guide solenoid	
	081	MC2		ADU paper feed MS	
	082	M9		Pre-transfer roller drive motor	
	083	M12		Second paper feed motor	
	084	M7	M	ADU reversal motor 1: Fast forward 2: Slow forward 3: Fast backward	
	085	M8	M	ADU conveyance motor 1: Fast 2: Slow	
	086	M5	M	Reverse and eject motor 1: Fast forward 2: Slow forward 3: Fast backward	
	087	FM10/ FM11		ADU Fan	
OTHERS	092			Factory initial set (field use prohibited)	
	093			—	
	094			Adjustment mode display mode	
	096			Factory shipment completion set (field use prohibited)	
	097			DIMM capacity check for Electronics RDH	
	098			DIMM check for Electronics RDH	
	099			1: HDD total capacity check 2: HDD remaining capacity check 3: HDD bad sectors check and recovery	

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OTHER ADJUSTMENT

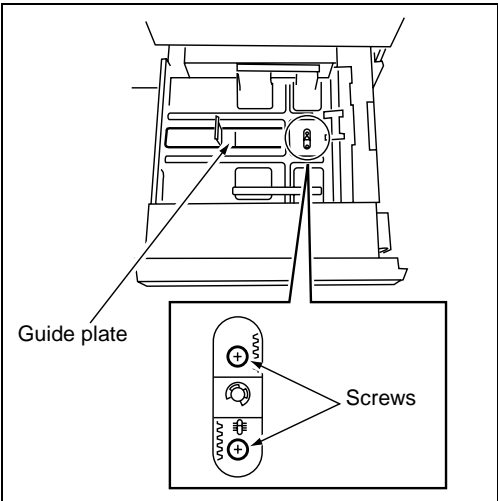
[1] Centring Adjustment

Caution: Centring adjustment need not be performed normally because paper inclination is detected in the second paper feed section and original image is corrected in the image processing unit to fit an inclined paper. Centring adjustment is required only when the detected paper inclination is not within the automatic image correction range.

1. Tool

- Screwdriver (Phillips)

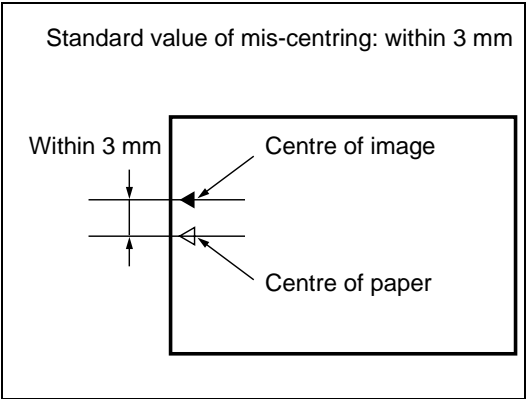
2. Tray 1/2/3 centring adjustment



a. Adjustment method

Step	Operation
1	Draw out the tray.
2	Loosen the two screws at the centre of the tray.
3	Slide the guide plate to adjust the centre position.
4	Tighten the two screws securely.
5	Insert the tray and make a copy to check the result.
6	Perform steps 1-5 repeatedly until miscentring is included in the automatic adjustment range (± 3 mm).

Caution: Disable the mis-centering correction function by setting the dip switch 12-3 and confirm it (Enter 1 to set to ON). Confirm it using the internal pattern No.16.



3. LCT tray centring adjustment

C-403

C-404

1. Guide plate/front
2. Guide plate/rear
3. Centre positioning bracket
4. Screws

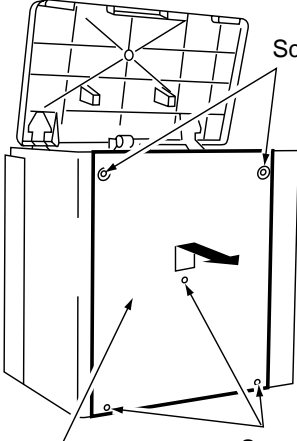
Standard value of mis-centring: within 3 mm

Within 3 mm

Centre of image

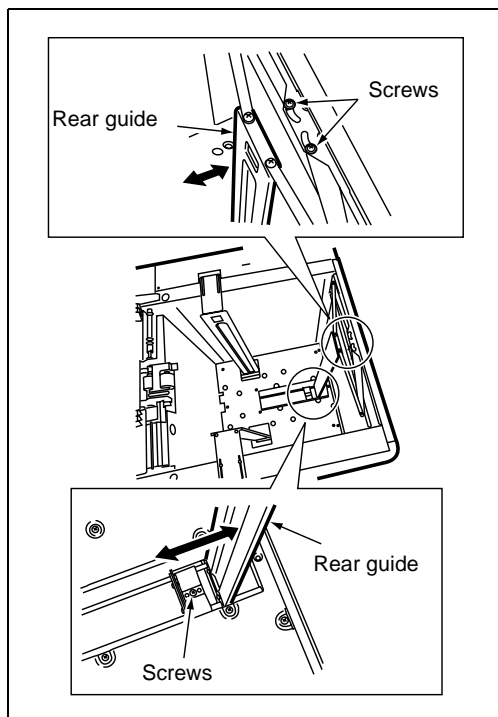
Centre of paper

a. Adjustment method

Step	Operation
1	Raise the up/down plate.
2	Open the top cover.
3	Remove five screws to detach the side cover (right). 
4	Loosen the two screws on the upper part of LCT to slide the guide plates (front/rear) the same amount in the same direction.
5	Secure the guide plates by tightening two screws firmly.
6	Loosen the three screws to slide the center positioning brackets same amount in the same direction as did for the guide plates (front/rear) in the step 4.
7	Secure the center positioning brackets by tightening three screws firmly.
8	Put the LCT back into the original position and make a copy to check the result.
9	Perform steps 1-8 repeatedly until mis-centering is included in the automatic adjustment range (± 3 mm).

Caution: Disable the mis-centering correction function by setting the dip switch 12-3(Enter 1 to set ON) and confirm it. Confirm it using the test pattern No.16.

4. Setting the LCT Rear Guide (C-404 only)



a. Adjustment method

Step	Operation
1	Open the top cover.
2	Press SW100 (LT tray down switch) to lower the up/down plate to the bottom.
3	Loosen the two screws at the top of the rear guide and one screw at the bottom.
4	Set paper on the up/down plate, align the trailing edge of paper with the lower end of the rear guide, then fasten the lower screw.
5	Fasten the two upper screws temporarily and move the up/down plate to the highest position.
6	Set paper on the up/down plate, align the trailing edge of paper with the upper end of the rear guide, then tighten the two upper screws finally.

Reference: LCT tray size setting can be performed in the key operator mode by setting the DIPSW21-1 to 1 in the 25 mode .

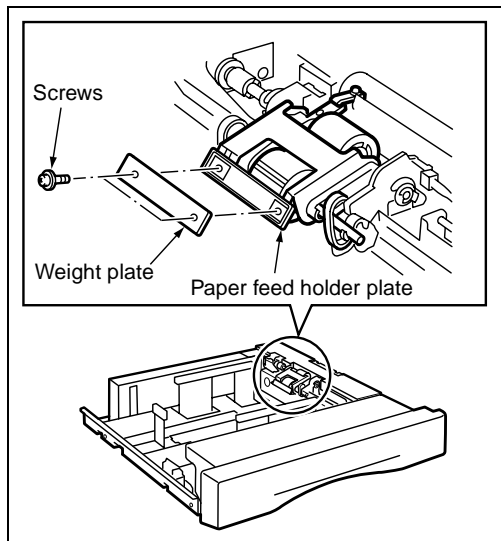
[2] Paper Feed Roller Load Adjustment

Caution: This adjustment is required when no paper feed occurs.

1. Tool

- Screwdriver (Phillips)

2. Paper feed roller load adjustment on trays 1, 2, 3

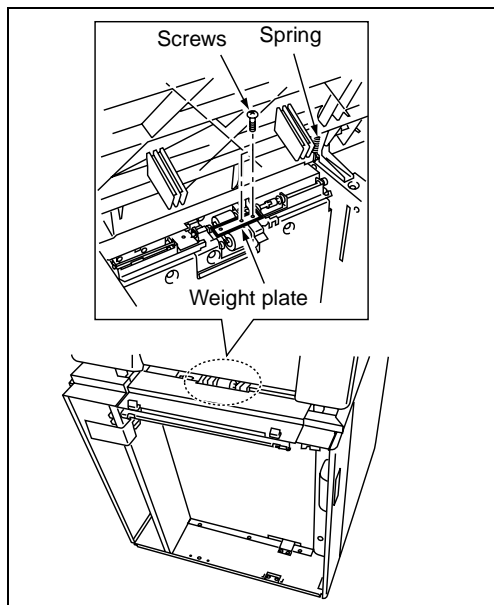


a. Adjustment method

Step	Operation
1	Pull out the tray.
2	Use two screws to install the weight plate on top of the paper feed holder plate.
3	Check the pick-up release amount. See [7] Pick-up Release Amount Adjustment.
4	Make a copy to check whether paper is fed properly.
5	Set the tray and run a test copy to check the paper feed status.
6	When "no feed" is not solved, add more weight plates and repeat steps 1 to 4.

Caution: Up to 6 weight plates can be installed. The M3 x 6 mm screws must be used to install up to three weight plates, and the M3 x 8 mm screws must be used when four to six plates are installed.

3. LCT paper feed roller load adjustments (C-404 only)



a. Adjustment method

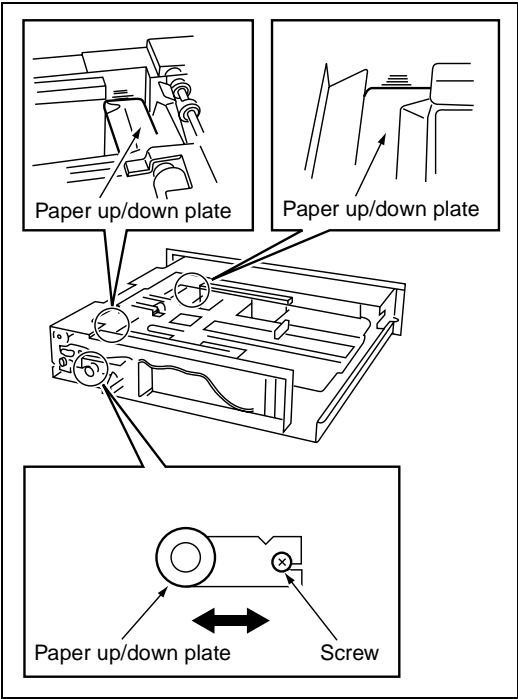
Step	Operation
1	Open the top cover.
2	Remove the spring.
3	Use two screws to install the weight plate on top of the paper feed roller.
4	Check the pick-up release amount. See [7] Pick-up Release Amount Adjustment.
5	After installing the spring and closing the top cover, run a test copy to check the paper feed status.
6	When "no feed" is not solved, add more weight plates and repeat steps 1 to 5.

Caution: Up to 6 weight plates can be installed. The M3 x 6 mm screws must be used to install up to three weight plates, and the M3 x 8 mm screws must be used when four to six plates are installed.

[3] Paper up/down plate horizontal adjustment

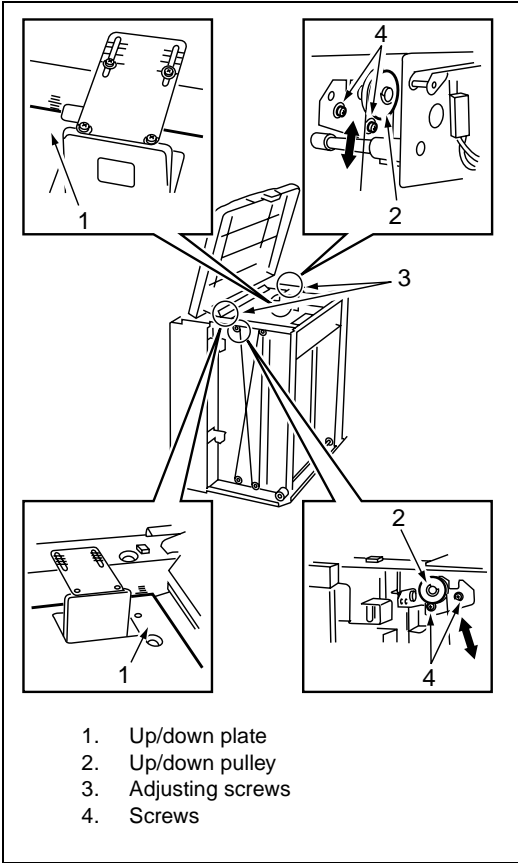
Caution: Paper up/down plate horizontal adjustment must be carried out when a paper feed jam occurs frequently or after replacement of the up/down wires of a tray.

1. **Tool**
 - Screwdriver (Phillips)
2. **Tray 1/2/3 paper up/down plate horizontality adjustment.**

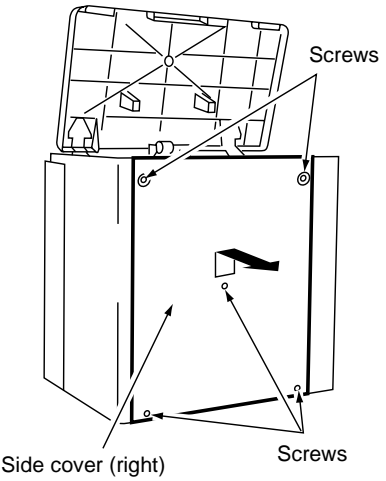
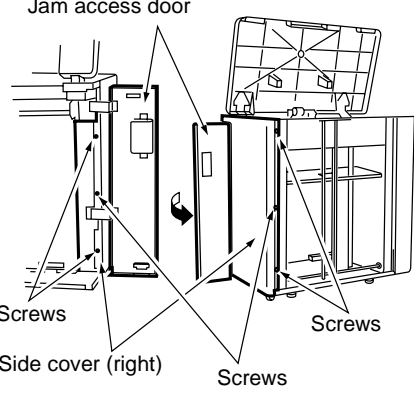


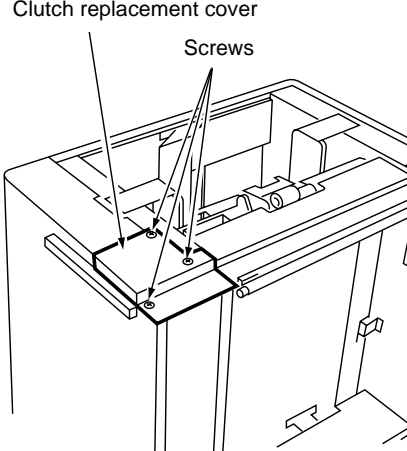
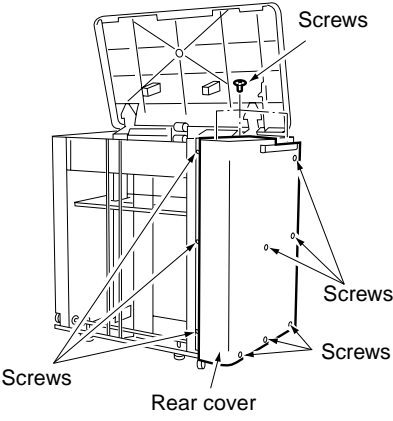
Step	Operation
1	To remove the tray with the up/down plate up, set the tray with a small thing (eraser, etc.) inserted under the up/down drive linkage lever. <div> <p>Eraser or the like</p> <p>Up/down drive linkage lever</p> </div>
2	Make sure that the up/down plate has moved up by hearing the motor sound, then draw out the tray.
3	Remove the two screws to remove the tray from the left and right guide rails.
4	Loosen a screw and adjust the position of the up/down pulley so that the front and rear ends of the up/down plate are at the same height.
5	Secure the up/down pulley by tightening the screw firmly.
6	Secure the tray on the guide rails.
7	Set the tray.

3. LCT Up/Down Plate Horizontality Adjustment



a. Adjustment method

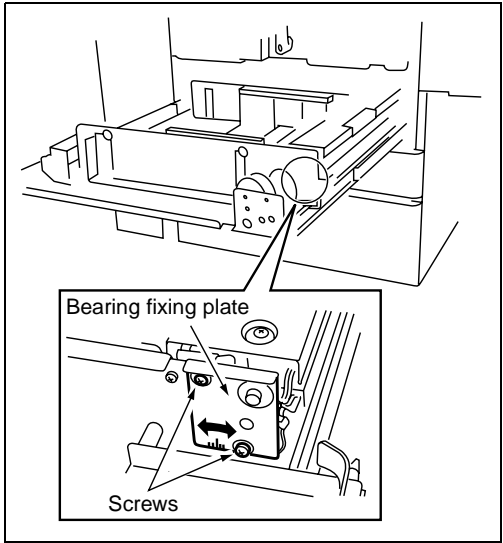
Step	Operation
1	Raise the up/down plate.
2	Open the top cover.
3	Remove five screws to detach the side cover (right). 
4	Open the jam access door, then remove six screws to detach the front cover. 

Step	Operation
5	<p>Remove three screws to detach the clutch replacement cover.</p> 
6	<p>Remove twelve screws to detach the rear cover.</p> 
7	<p>Loosen the two screws and adjust the position of each paper up/down plate drive pulley using an adjustment screw so that the front and rear of the paper up/down plate are at the same height.</p>
8	<p>Secure the paper up/down plate drive pulleys by tightening the two screws (per up/down pulley) .</p>
9	<p>Install the rear cover, clutch replacement cover, front cover, and side cover (right).</p>

[4] Skew adjustment

Caution: Skew adjustment is required when the paper supplied from the current tray is different from the paper supplied from other trays in the way it is skewed. However, this adjustment has little effect because skew of paper supplied from all trays is corrected in the second paper feed unit.

- 1. Tool**
 - Screwdriver (Phillips)
- 2. Adjustment of skew of conveyance roller of tray 1/2/3**

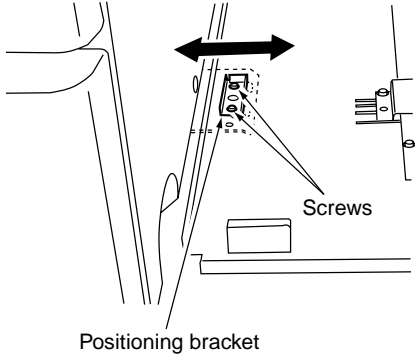


a. Adjustment method

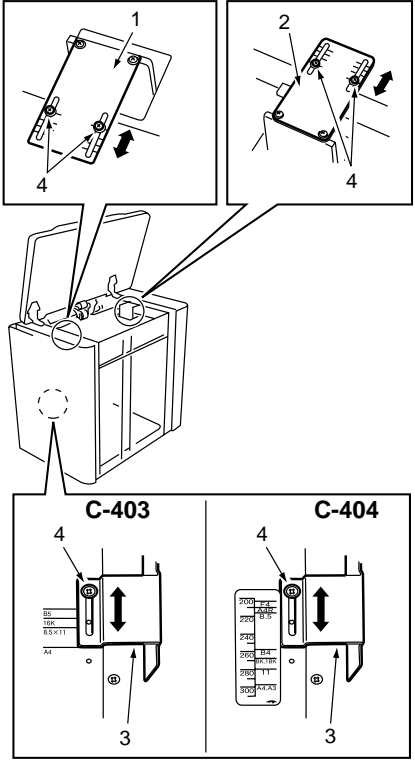
Step	Operation
1	Draw out the tray and detach the front cover.
2	Loosen the two screws to slide the bearing fixing plate.
3	Secure the bearing fixing plate by tightening the two screws firmly.
4	Install the front cover and set the tray.

3. LCT skew adjustment

a. Adjustment method (when all printed sheets are skewed)

Step	Operation
1	Print a test pattern (No.16) in the continuous copy mode to check for skew.
2	Open the jam access door of the LCT and adjust the installation position of the positioning bracket on the bottom plate. 

b. Adjustment method (when some printed sheets are skewed irregularly)

Step	Operation
1	Print a test pattern (No.16) in the continuous copy mode to check for skew.
2	Remove the side cover (right).
3	Loosen the five screws securing the guide plates (front and rear) and the centering positioning bracket temporarily. Press the guide plates (front and rear) against paper, then tighten the five screws.  <div><div>1. Guide plate/front</div><div>2. Guide plate/rear</div><div>3. Centre positioning bracket</div><div>4. Screws</div></div>

Reference: The indicated size of each guide plate is about 2 mm wider than the size of regular paper. The 2 mm gap may cause paper skew depending on the paper type. To reduce this skew, press the guide plates (front and rear) against paper tightly.

4. ADU (Rear side) Skew Adjustment

a. Adjustment method

Step	Operation
1	Draw out the ADU stand and detach the ADU cover.
2	Loosen the two screws to slide the pre-registratin roller unit installation position.
3	Secure the fixing plate by tightening the two screws firmly.
4	Install the ADU cover and set the ADU stand.

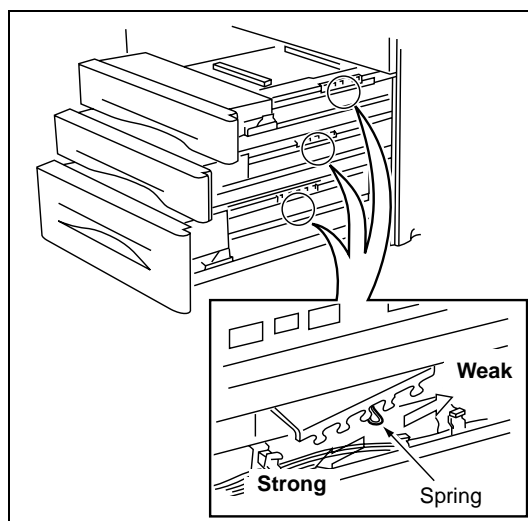
[5] Tray spring pressure adjustment

Caution: Tray spring pressure adjustment must be performed when no feed or double feed of paper occurs. Tray spring pressure may be affected by a type of paper used or operating environment (under the low temperature condition, no feed of paper tends to occur. Under the high temperature condition, double feed of paper tends to occur). Excessive adjustment of tray spring pressure may exacerbate the problem. Take care.

1. Tool

- Screwdriver (Phillips)
- Flat-nose pliers

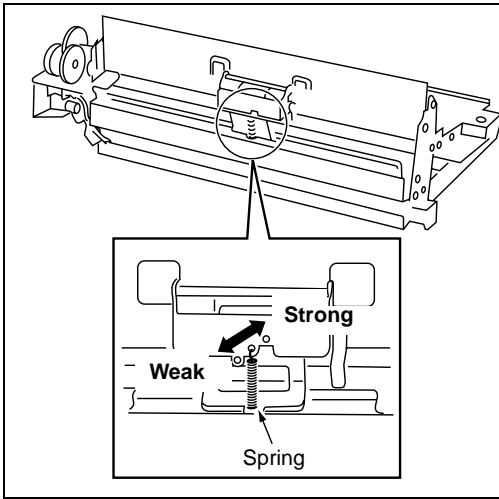
2. Tray 1/2/3 spring pressure adjustment



a. Adjustment method

Step	Operation
1	Draw out the tray.
2	Change the spring hooking position. Weak: Double feed is prevented. Strong: No feed is prevented. Reference: The spring load changes about 10 % each time the spring is hooked in the next slit.
3	Set the tray.

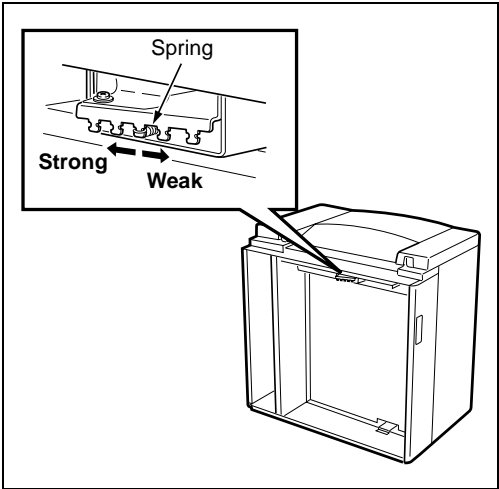
3. By-pass paper feed spring pressure adjustment



a. Adjustment method

Step	Operation
1	Remove the bypass tray from the main body.
2	Change the spring hooking position. Weak: Double feed is prevented. Strong: No feed is prevented. Reference: The spring load changes about 15 % each time the spring is hooked in the next slit.
3	Install the bypass tray to the main body.

4. LCT spring pressure adjustment



a. Adjustment method

Step	Operation
1	Remove the LCT from the main body.
2	Change the spring hooking position. Weak: Double feed is prevented. Strong: No feed is prevented. Reference: The spring load changes about 10% each time the spring is hooked in the next slit.
3	Install the LCT.

[6] Paper feed height (upper limit) adjustment

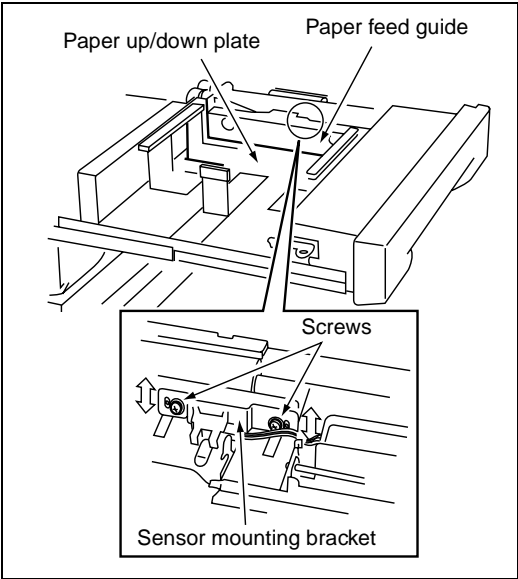
Caution1: Paper feed height (upper limit) adjustment must be performed when no paper feed occurs, when the leading edge of the fed paper is folded or when a convexly curled paper is fed. To perform this adjustment, move the upper limit sensor mounting bracket vertically.

Caution2: This adjustment may affect the release amount of the pick-up so that [7] pick-up roller release amount adjustment must be performed after this adjustment.

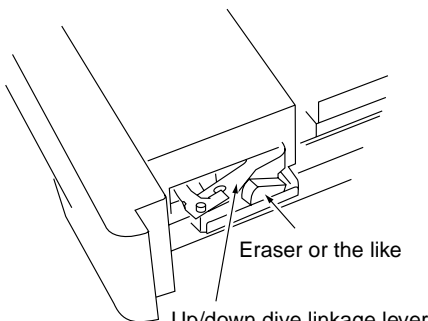
1. Tool

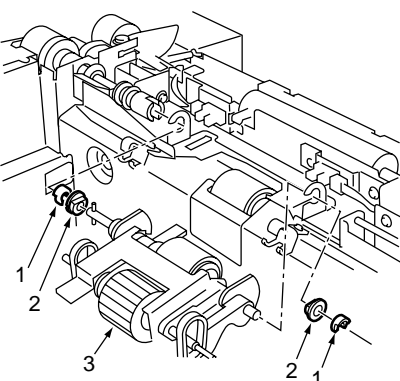
- Screwdriver (Phillips)
- Scale

2. Adjustment of paper feed height (upper limit) of tray 1/2/3

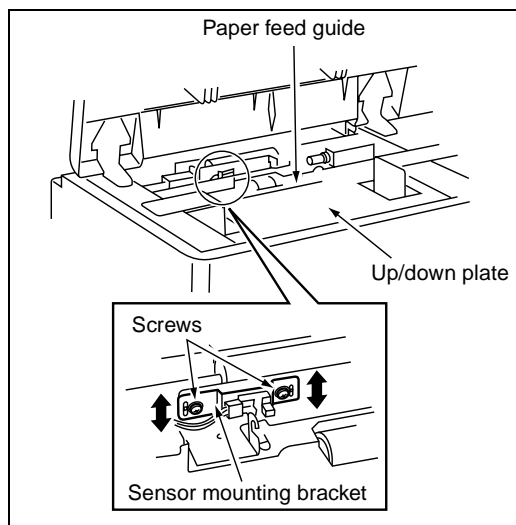


a. Adjustment method

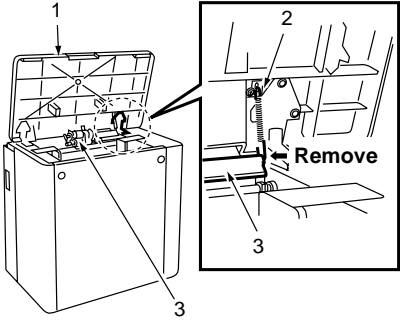
Step	Operation
1	To draw out the tray with the paper up/down plate held up, set the tray with an eraser or the like inserted under the paper up/down plate drive linkage lever. 
2	Make sure the paper up/down plate has moved up by hearing the motor sound, then draw out the tray.
3	Place the paper feed roller unit upright.
4	Measure the distance between the top surfaces of the paper feed guide and paper up/down plate and check whether it is within specifications. Standard value: 2-5 mm If the leading edge of the paper is folded irrespective of whether the above distance is within specifications, perform steps 5 and later.
5	Remove the two retaining rings to slide the two bearings outward, then remove the paper feed roller unit.

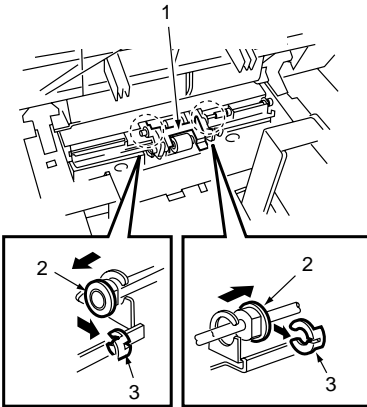
6	<p>To draw out the tray with the paper up/down plate held up, set the tray with a eraser or the like inserted under the paper up/down plate drive linkage lever.</p>  <ol style="list-style-type: none"> 1. Retaining ring 2. Bearing 3. Paper feed roller unit
7	<p>Remove the two screws securing the sensor mounting bracket and install them in the outside mounting holes (oblong holes) temporarily.</p>
8	<p><When the heights are not within specifications> Adjust the position of the sensor mounting bracket vertically so that the distance between the top surfaces of the paper feed guide and paper up/down plate is within the specifications.</p> <p>Larger than the standard value: Lower the sensor mounting bracket (Raise the paper up/down plate). Less than the standard value: Raise the sensor mounting bracket (Lower the paper up/down plate).</p> <p><When any fault has occurred> Folded leading edge of paper: Raise the sensor mounting bracket. Convexly curled paper: Lower the sensor mounting bracket</p>
9	<p>Install the paper feed roller unit and paper conveyance unit cover.</p>
10	<p>Set the tray.</p>

3. Adjustment of paper feed height (upper limit) of LCT



a. Adjustment method

Step	Operation
1	Move the up/down plate up.
2	Open the top cover.
3	<p>Measure the distance between the top surfaces of the paper feed guide and paper up/down plate and check whether it is within specifications.</p> <p>Standard value: 2 to 5 mm</p> <p>If the leading edge of the paper is folded irrespective of whether the above distance is within specifications, perform steps 4 and later.</p>
4	<p>Remove the spring from the paper pick-up roller unit.</p>  <ol style="list-style-type: none"> 1. Top cover 2. Spring 3. Paper feed roller unit

5	<p>Remove the two retaining rings to slide the two bearings outward, then remove the paper feed roller unit.</p>  <p>1. Paper feed roller unit 2. Bearing 3. Retaining ring</p>
6	<p>Remove the two screws securing the sensor mounting bracket and install them in the outside mounting holes (oblong holes) temporarily.</p>
7	<p><When the heights are not within specifications> Adjust the position of the sensor mounting bracket vertically so that the distance between the top surfaces of the paper feed guide and paper up/down plate is within the specifications.</p> <p>When raising the height of the paper up/down plate: Lower the sensor mounting bracket. When lowering the height of the paper up/down plate: Raise the sensor mounting bracket.</p> <p><When any fault has occurred> Folded leading edge of paper: Raise the sensor mounting bracket. Convexly curled paper: Lower the sensor mounting bracket.</p>
8	<p>Install the paper feed roller unit and spring.</p>
9	<p>Close the top cover.</p>

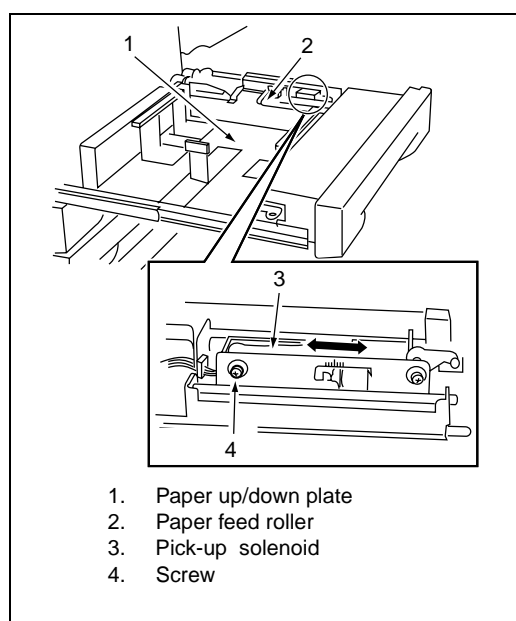
[7] Pick-up Release Amount Adjustment

Caution: Pick-up release amount adjustment must be performed when a no-feed jam occurs frequently. To perform this adjustment, adjust the mounting position of the pick-up solenoid.

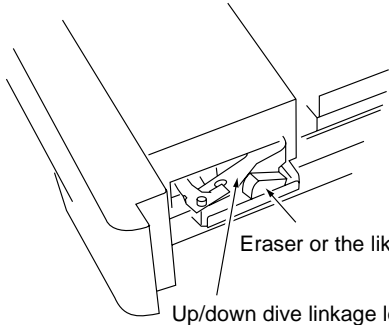
1. Tool

- Screwdriver (Phillips)
- Scale

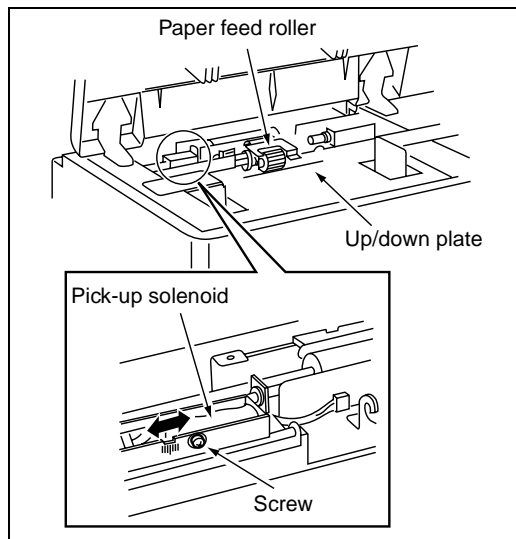
2. Adjustment of pick-up release amount of tray 1/2/3



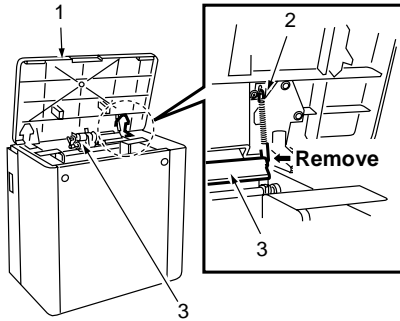
a. Adjustment method

Step	Operation
1	<p>To draw out the tray with the paper up/down plate held up, set the tray with a eraser or the like inserted under the paper up/down plate drive linkage lever.</p>  <p>Eraser or the like</p> <p>Up/down drive linkage lever</p>
2	Make sure the paper up/down plate has moved up by hearing the motor sound, then draw out the tray.
3	<p>Pull the movable portion of the pick-up solenoid and check whether the distance between the bottom of the paper feed roller and the top surface of the paper up/down plate is within specifications.</p> <p>Standard value: 0.5 to 2.5 mm</p> <p>If the distance is not within specifications, perform steps 4 and later.</p>
4	<p>Loosen one screw and adjust the mounting position of the pick-up solenoid.</p> <p>Caution: Take a note to remember the initial mounting position.</p>
5	Secure the pick-up solenoid by tightening the screw.
6	Set the tray.

3. Adjustment of pick-up release amount of LCT



a. Adjustment method

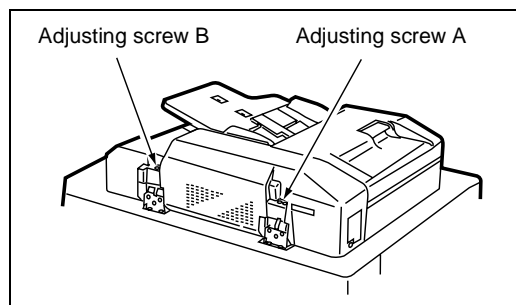
Step	Operation
1	Move the up/down plate up.
2	Open the top cover.
3	Remove the spring from the paper feed roller unit.  <p>1. Top cover 2. Spring 3. Paper feed roller unit</p>
4	Pull the movable portion of the pick-up solenoid and check whether the distance between the bottom of the paper feed roller and the top surface of the up/down plate is within specifications. Standard value: 0.5 to 2.5 mm If the distance is not within specifications, perform steps 5 and later.
5	Loosen one screw to adjust the mounting position of the pick-up solenoid. Caution: Take a note to remember the initial mounting position.
6	Secure the pick-up solenoid by tightening the screw.
7	Install the spring.
8	Close the top cover.

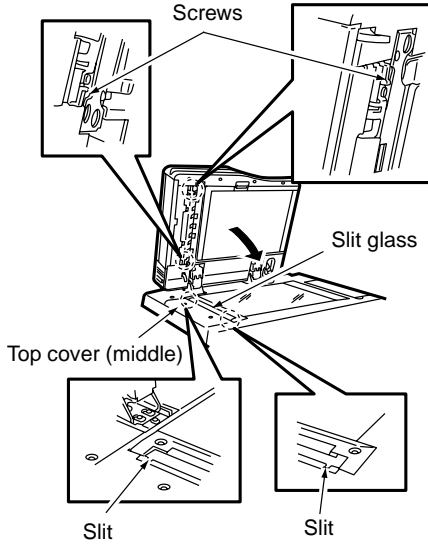
[8] EDH Mounting Position Adjustment

1. Tool

- Screwdriver (Phillips)

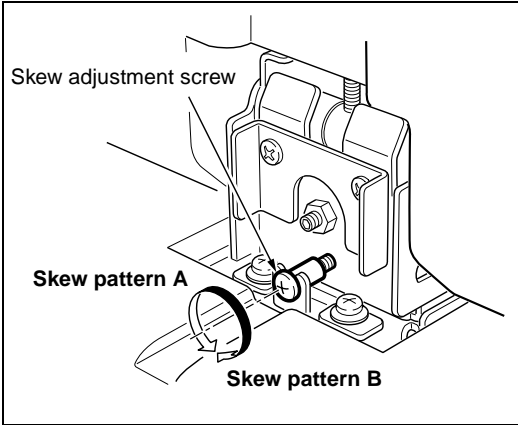
2. Adjustment method



Step	Operation
1	Close the EDH.
2	Check if both stopper pieces on the EDH side touch the slit glass.  <p>Screws Slit glass Top cover (middle) Slit</p>
3	If both stopper pieces do not touch the slit glass, make adjustments using adjusting screws A and B alternately.
4	Perform steps 2 and 3 repeatedly until the two stopper pieces touch the slit glass at the same time.

[9] EDH Skew adjustment

1. Tool
- Screwdriver (Phillips)
2. Adjustment method



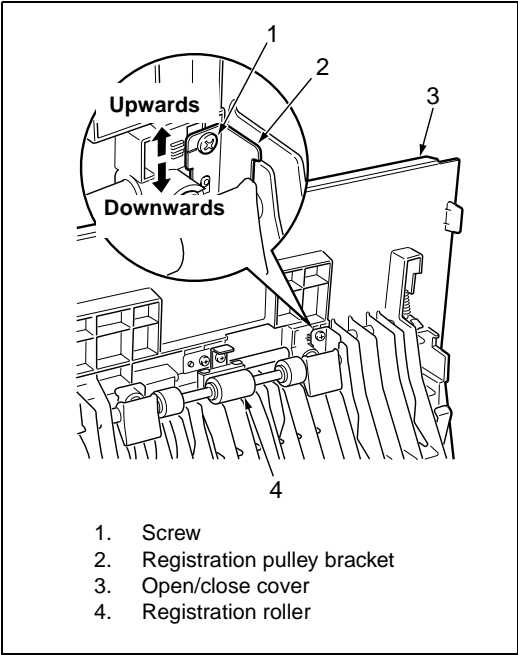
	Close the EDH, turn the skew adjustment screws and adjust the skew. For skew pattern A: Turn the skew adjustment screw counter-clockwise. For skew pattern B: Turn the skew adjustment screw clockwise.
4	Make a test copy and check the skew.
5	Tighten the four hinge securing screws (two on both the left and right.)
6	Make adjustment by repeating steps 3 to 6.

Step	Operation
1	Set A3 paper into the tray1.
2	<p>Set the adjustment chart on the EDH, make a copy, and check the skew. Standard value: within $\pm 0.3\%$</p> <div><p>Feed direction</p><p>Skew pattern A Skew pattern B</p></div> <p>Perform the following adjustment if the skew is beyond the standard value.</p>
3	<p>Open the EDH and loosen the four hinge set screws (two on both the left and right).</p> <div><p>Hinge set screws</p></div>

[10] EDH Paper Skew Adjustment

1. Face side (side 1) of original paper skew

Note: Always perform this adjustment after completing the EDH skew adjustment.
(Refer to the previous page.)

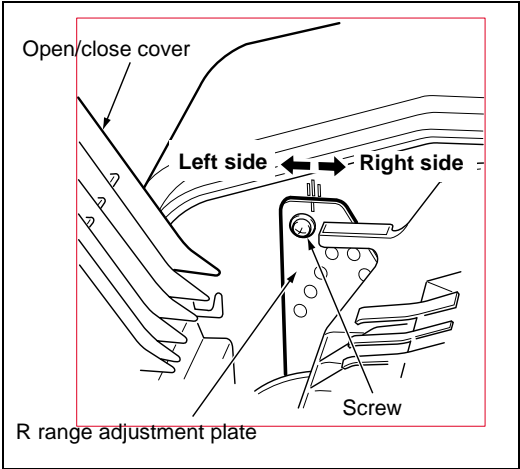


4	<p>Move the registration pulley bracket one calibration in the direction below according to the paper skew pattern.</p> <p>For skew in pattern A: Move the registration pulley bracket downwards (direction down with original feed flow).</p> <p>For skew in pattern B: Move the registration pulley bracket upwards (direction up towards original feed flow).</p> <p>Note: Make sure that the registration pulley shaft does not touch the open/close cover spring holder unit.</p>
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5 % or less)

Specified range: Paper skew ± 0.5 % or less
(Paper skew in the paper feed direction)

Step	Operation
1	<p>Make a copy in the single sided to single sided copy mode, then check the skew of the original. (Either pattern A or B)</p> <div style="text-align: center;"> <p>Image</p> <p>Copy paper feed direction</p> <p>Copy paper</p> <p>Paper Skew pattern A Paper Skew pattern B</p> </div>
2	Open the open/close cover.
3	Loosen the retaining screw to release the registration pulley bracket

2. Back side (side 2) of original paper skew adjustment

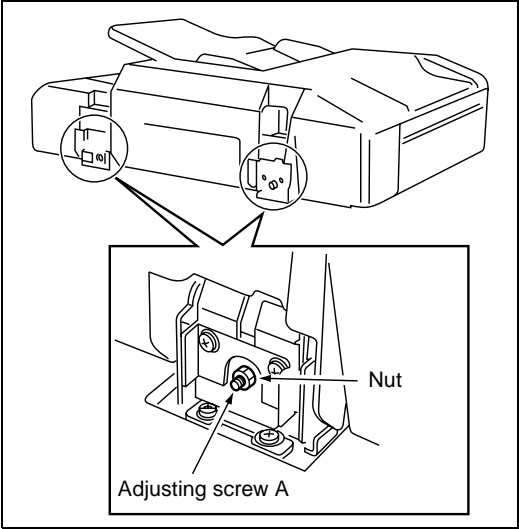


Step	Operation
1	<p>Make a copy in the double sided to single sided copy mode, then check the skew of the original. (Either pattern A or B)</p> <div><p>Image</p><p>Copy paper feed direction</p><p>Copy paper</p><p>Paper Skew pattern A</p><p>Paper Skew pattern B</p></div>
2	Open the open/close cover.
3	Loosen the set screw and release the R range adjustment plate.
4	<p>Move the R range adjustment plate one calibration in the direction below according to the paper skew pattern.</p> <p>For skew in pattern A: Move the R range adjustment plate to left side.</p> <p>For skew in pattern B: Move the R range adjustment plate to right side.</p>
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less)

Specified range: Paper skew $\pm 0.5\%$ or less
(Paper skew in the paper feed direction)

[11] EDH Hinge Spring Pressure Adjustment

1. Tool
- Screwdriver (slotted)
 - Wrench or flat-nose pliers
2. Adjustment method



Step	Operation
1	Close the EDH.
2	Loosen the nut on the left side and the nut on the right side.
3	Open the EDH.
4	<p>Turn the adjusting screws to adjust the pressure of hinge springs.</p> <p>Tightening (turning clockwise): Spring pressure reduces.</p> <p>Loosening (turning counterclockwise): Spring pressure increases.</p>
5	Close the EDH.
6	Tighten the nut on the left side and the nut on the right side.

[12] FNS Adjusting the Magnets on Conveyance Guide Plate B

1. Tool

- Screwdriver (Phillips)

2. Adjustment method

a. Preparation

Step	Operation
1	Open the front cover.
2	Check whether conveyance guide plate B makes contact with the cushioning rubber when the magnets are stuck to conveyance guide plate A.
3	If conveyance guide plate B does not make contact with the cushioning rubber, remove the rear cover and carry out adjustment as described below.

b. Adjustment

Step	Operation
1	Detach all FNS CB (FNS control board) connectors.
2	Remove the 2 set screws holding the FNS CB in place. Remove the FNS CB together with its bracket. <div style="text-align: center;"> <p>Bracket</p> <p>FNS CB (Finisher control board)</p> <p>Screws</p> </div>
3	Loosen the 4 magnet-holding set screws (two at the front and two at the back), and move conveyance guide plate B all the way in the direction indicated by the arrow.
4	Remove the E-ring and the gear.

Step	Operation
5	Adhere the magnets to conveyance guide plate A and retighten the set screws. <div style="text-align: center;"> <p>1. Magnet (rear) 2. Gear 3. E-ring 4. Magnet (front) 5. Conveyance guide plate A 6. Conveyance guide plate B</p> </div>
6	Reassemble in opposite sequence to removal.

[13] FNS Adjusting the Magnets on Conveyance Guide Plate C

1. Tool

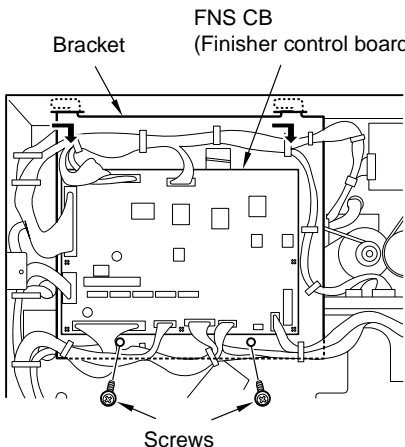
- Screwdriver (Phillips)

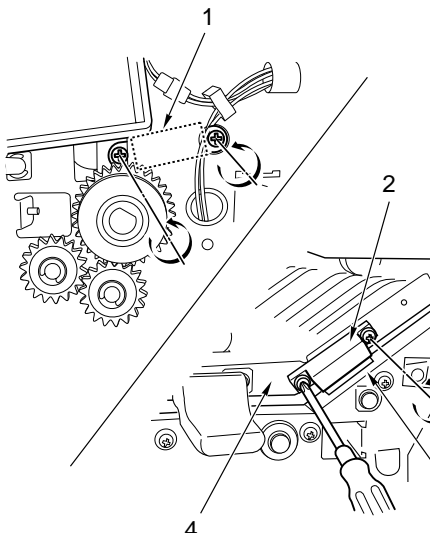
2. Adjustment method

a. Preparation

Step	Operation
1	Open the front cover.
2	Check whether conveyance guide plate C makes contact with the cushioning rubber when the magnets are stuck to conveyance guide plate D.
3	If conveyance guide plate C does not make contact with the cushioning rubber, remove the rear cover and carry out adjustment as described below.

b. Adjustment

Step	Operation
1	Detach all FNS CB (FNS control board) connectors.
2	Remove the 2 set screws holding the FNS CB in place. Remove the FNS CB together with its bracket. 
3	Loosen the 4 magnet-holding set screws (two at the front and two at the back), and move conveyance guide plate C all the way in the direction indicated by the arrow.

Step	Operation
4	Adhere the magnets to conveyance guide plate A and retighten the screws. 
5	Reassemble in opposite sequence to removal.

1. Magnet (rear)
2. Magnet (front)
3. Conveyance guide plate A
4. Conveyance guide plate B

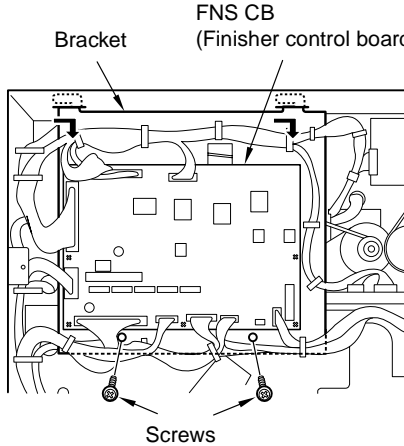
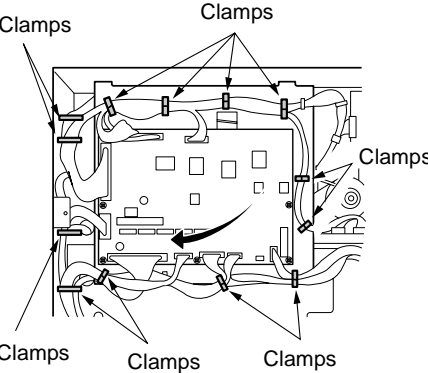
[14] FNS Adjusting the Sub-tray Paper Exit Gate

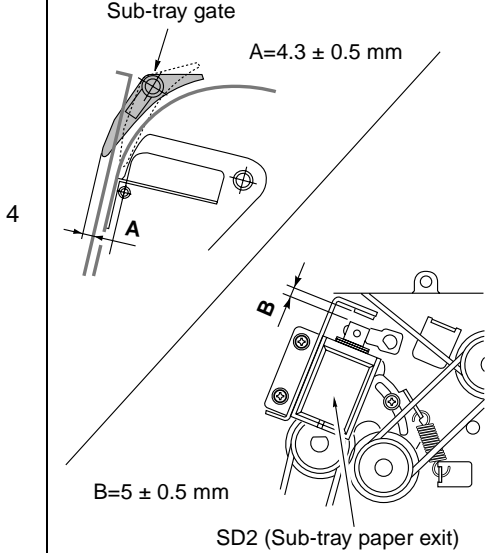
1. Tool

- Screwdriver (Phillips)
- Scale

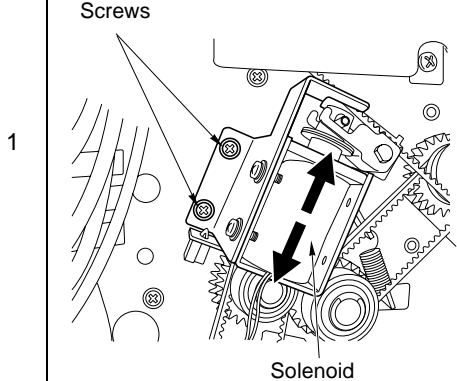
2. Adjustment method

a. Preparation

Step	Operation
1	<p>Remove the 2 set screws holding the FNS CB (FNS control board) in place. Remove the FNS CB together with its bracket.</p> 
2	<p>Remove the wirings from the clamps, and move the FNS CB together with its bracket.</p> 
3	<p>With SD2 (sub-tray paper exit) OFF, measure the gap between the sub-tray gate and the guide plate (indicated by A in the illustration). Spec value for gap: $A = 4 \pm 0.5$ mm.</p>

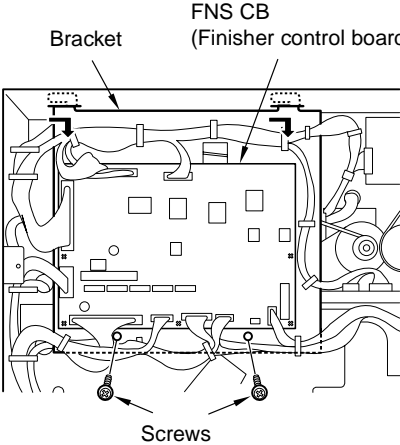
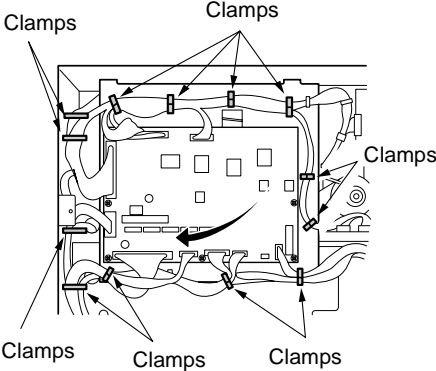
Step	Operation
4	<p>With SD2 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration). Spec value for gap: $B = 5 \pm 0.5$ mm.</p> 
5	<p>If either gap is out of spec, carry out adjustment as described below.</p>

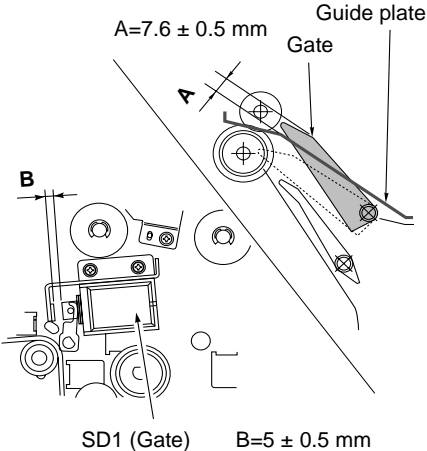
b. Adjustment

Step	Operation
1	<p>Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust.</p> 
2	<p>Retighten the screws.</p>
3	<p>Reinstall in opposite sequence to removal.</p>

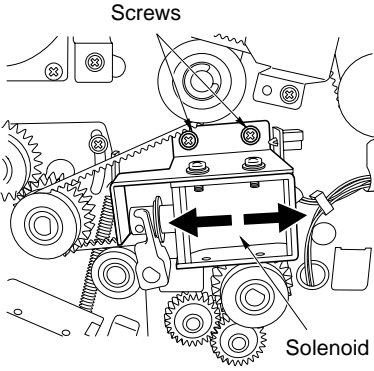
[15] FNS Adjusting the Paper-Path Switching Gate

1. Tool
- Screwdriver (Phillips)
 - Scale
2. Adjustment method
- a. Preparation

Step	Operation
1	2. Preparation (1) Remove the following parts. <ul style="list-style-type: none">• Rear cover and Top cover• Cover Inserter C (if installed)
2	Remove the 2 set screws holding the FNS CB (FNS control board) in place. Remove the FNS CB together with its bracket. <div></div>
3	Remove the wirings from the clamps, and move the FNS CB together with its bracket. <div></div>

Step	Operation
4	With SD1 (gate) ON, measure the distance between the long gate and the guide plate, indicated by A in the illustration. Spec value for distance: $A = 7.6 \pm 0.5 \text{ mm}$.
5	Again with SD1 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration). Spec value for gap: $B = 5 \pm 0.5 \text{ mm}$ <div></div>
6	If either measurement is out of spec, carry out adjustment as described below.

b. Adjustmen

Step	Operation
1	Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust. <div></div>
2	Retighten the screws.
3	Reassemble in the opposite sequence to removal.

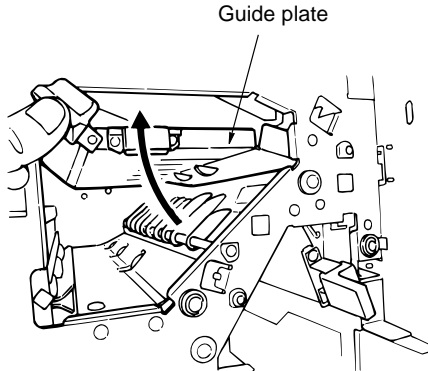
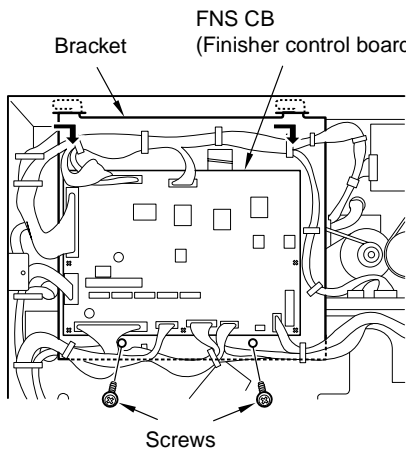
[16] FNS Adjusting the By-pass Gate

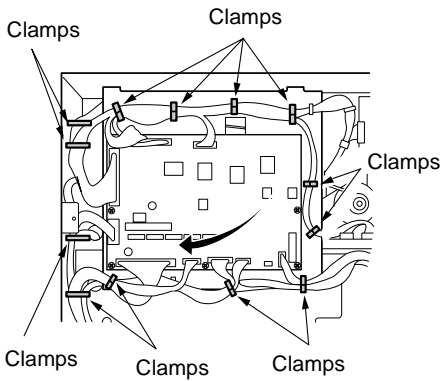
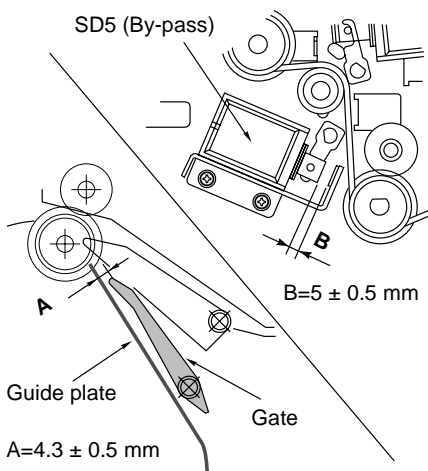
1. Tool

- Screwdriver (Phillips)
- Scale

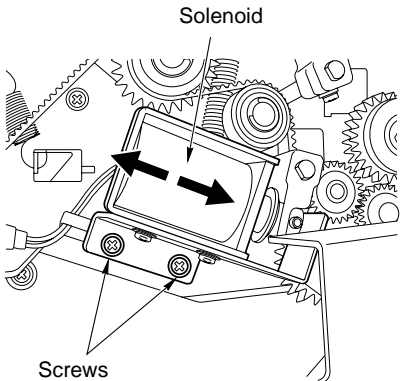
2. Adjustment method

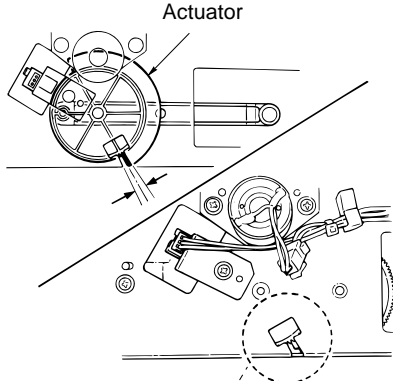
a. Preparation

Step	Operation
1	Remove the following parts.
2	Open the front cover and the guide plate. 
3	Remove the 2 set screws holding the FNS CB (FNS control board) in place. Remove the FNS CB together with its bracket. 

Step	Operation
4	Remove the wirings from the clamps, and move the FNS CB together with its bracket. 
5	With SD5 (by-pass) OFF, measure the distance between the by-pass gate and the guide plate, indicated by A in the illustration. Spec value for distance: $A = 4.3 \pm 0.5 \text{ mm}$
6	With SD5 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration). Spec value for gap: $B = 5 \pm 0.5 \text{ mm}$ 
7	If either measurement is out of spec, carry out adjustment as described below.

b. Adjustmen

Step	Operation
1	Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust. 
2	Retighten the screws.
3	Reassemble in the opposite sequence to removal.

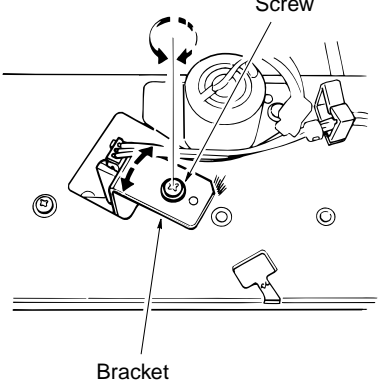
Step	Operation
3	With the M2 (roller shift) OFF (home position), check that the actuator on PS18 (roller shift HP) is correctly aligned with the cutout on the shift-unit mounting plate. 
4	If the actuator is not correctly aligned with the cutout, carry out adjustment as described below.

[17] FNS Adjusting the Shift Position

1. **Tool**
- Screwdriver (Phillips)
2. **Adjustment method**
- a. Preparation

Step	Operation
1	Remove the following parts. <ul style="list-style-type: none">• Top cover and Rear cover• Cover inserter C (if installed)
2	Switch the power OFF to ON to OFF.

b. Adjustment

Step	Operation
1	Loosen the screw holding the PS18 (roller shift HP) bracket in place, and adjust the bracket position as necessary. 
2	Retighten the screw.
3	Reassemble in the opposite sequence to removal.

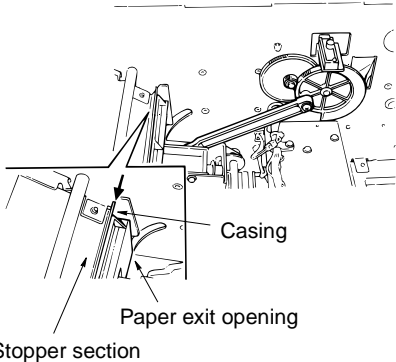
[18] FNS Adjusting Opening/Closing at the Paper Exit

1. Tool

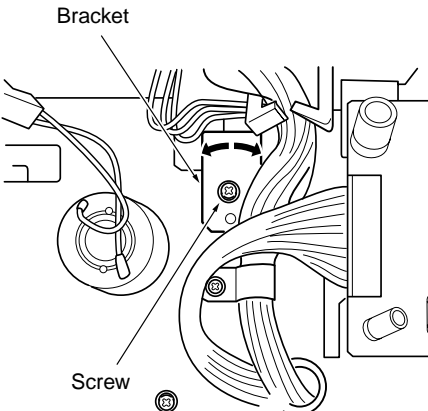
- Screwdriver (Phillips)

2. Adjustment method

a. Preparation

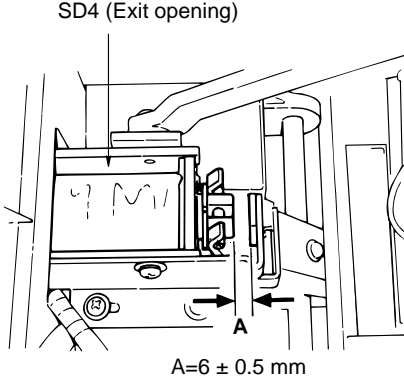
Step	Operation
1	Remove the following parts. <ul style="list-style-type: none">• Top cover and Rear cover• Cover inserter C (if installed)
2	Switch the power OFF to ON to OFF.
3	<p>Then, with the paper exit closed, confirm that the paper exit casing is firmly against the stopper section.</p>  <p>Casing</p> <p>Paper exit opening</p> <p>Stopper section</p>
4	If the casing is not in firm contact with the stopper, carry out adjustment described as follows.

b. Adjustment

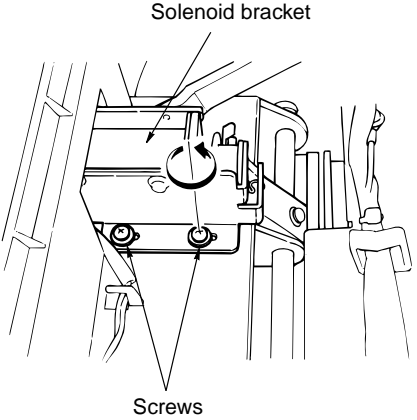
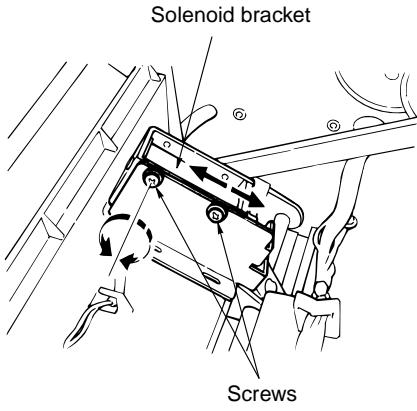
Step	Operation
1	<p>Loosen the set screw holding the PS12 (paper exit-opening detector) bracket in place, and adjust the bracket position as necessary.</p>  <p>Bracket</p> <p>Screw</p>
2	Retighten the bracket set screw.
3	Reassemble in the opposite sequence to removal.

[19] FNS Adjusting the Paper Exit-Opening Solenoid

1. Tool
- Screwdriver (Phillips)
 - Scale
2. Adjustment method
- a. Preparation

Step	Operation
1	Remove the following parts. <ul style="list-style-type: none">• Top cover and Rear cover• Cover inserter C (if installed)
2	With SD4 (paper exit-opening solenoid) ON, measure the gap between the solenoid plunger and the bracket stopper. Spec value for gap: $A = 6.0 \pm 0.5 \text{ mm}$ 
3	If the gap is out of spec, carry out adjustment describe as follows.

b. Adjustment

Step	Operation
1	Remove the 2 set screws holding the solenoid bracket in place, and remove the solenoid together with the bracket. 
2	Loosen the 2 screws holding the solenoid to the bracket, and adjust the position of solenoid. 
3	Retighten the 2 solenoid screws, then replace the solenoid and bracket into their original position and screw in the 2 bracket screws.
4	Reassemble in the opposite sequence to removal.

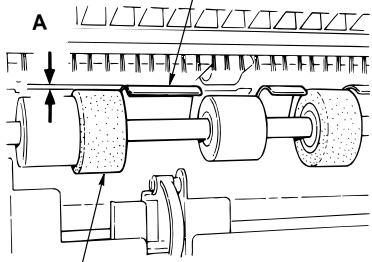
[20] FNS Adjusting the Paper Exit Opening Lower Guide Plate

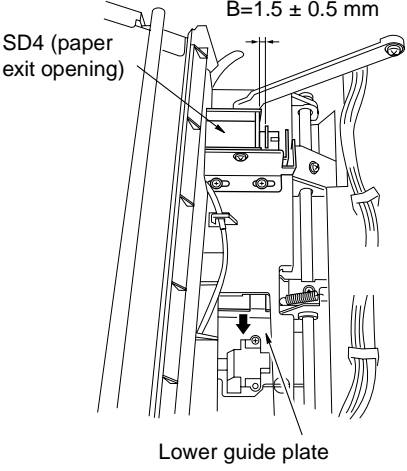
1. Tool

- Screwdriver (Phillips)
- Scale

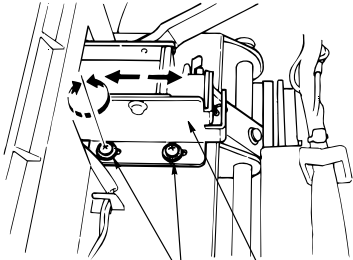
2. Adjustment method

a. Preparation

Step	Operation
1	Remove the following parts. <ul style="list-style-type: none">• Top cover and Rear cover• Cover inserter C (if installed)
2	<p>With SD4 (paper exit-opening solenoid) OFF, confirm that the paper exit-opening lower guide plate is a sufficient distance (distance A) higher than the sponge rollers.</p> <p>Spec value: A = 1.5mm and greater</p> <p>A=1.5 ± 0.5 mm</p> <p>Lower guide plate</p>  <p>Sponge roller</p>

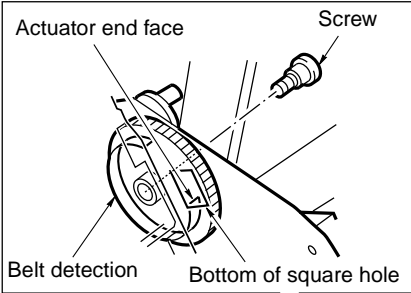
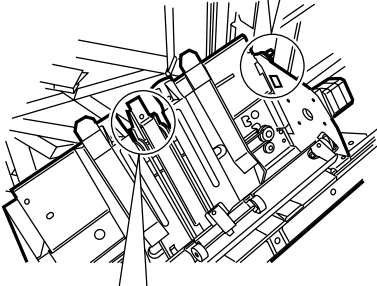
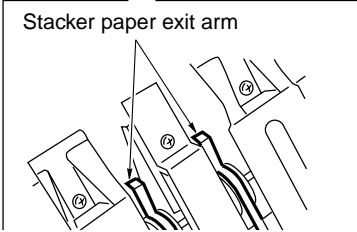
Step	Operation
3	<p>Hold down the paper exit-opening lower guide plate with your hand so that the paper exit roller makes contact, and check that the remaining stroke for solenoid SD4 (distance B) is within spec.</p> <p>Spec value: B = 2.5 ± 0.5mm</p>  <p>SD4 (paper exit opening)</p> <p>Lower guide plate</p>
4	If the gap is out of spec, carry out adjustment describe as follows.

b. Adjustment

Step	Operation
1	<p>Remove the 2 set screws holding the solenoid bracket in place, and remove the solenoid together with the bracket.</p>  <p>Screws</p> <p>Solenoid bracket</p>
2	Retighten the 2 bracket set screws.
3	Reassemble in the reverse sequence to removal.

[21] FNS Adjusting the Mount Location of the Paper Exit Arm

- 1. Tool
 - Screwdriver (Phillips)
- 2. Adjustment method
 - a. Adjustment

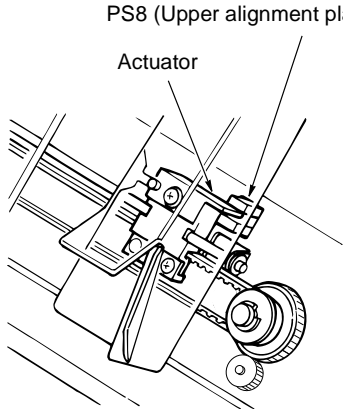
Step	Operation
1	Remove the screw to remove the belt detection gear.
2	<p>When the stacker paper exit arm is at the position shown below, secure the belt detection gear with a screw with the actuator end face of the belt detection gear aligned with the bottom of the square hole.</p> <div></div> <div></div> <div></div>

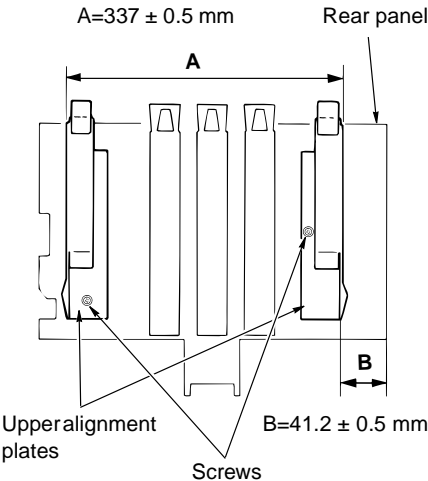
[22] FNS Adjusting the Mount Location of the Upper Alignment Plates

- 1. Tool
 - Screwdriver (Phillips)
 - Scale
- 2. Adjustment method
 - a. Preparation

Step	Operation
1	Open the front cover and pull out the stacker/stapler unit.

- b. Adjustment

Step	Operation
1	<p>Move the upper alignment plates into home position. (Move so that the actuator on the upper-alignment-plate drive belt is at PS8 (upper-alignment-plate HP).</p> <div></div>

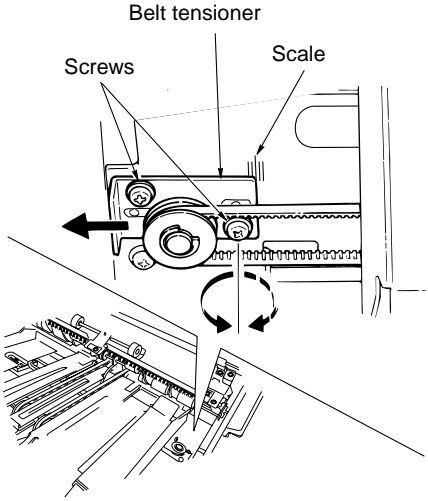
Step	Operation
2	<p>Loosen the 2 set screws fixing the upper alignment plates in place (one screw on each plate), and adjust the plates so that distances A and B are within specification. Spec values: $A = 337 \pm 0.5 \text{ mm}$ $B = 41.2 \pm 0.5 \text{ mm}$</p>  <p>$A = 337 \pm 0.5 \text{ mm}$ Rear panel</p> <p>$B = 41.2 \pm 0.5 \text{ mm}$</p> <p>Upper alignment plates Screws</p>
3	Retighten the screws.

[23] FNS Adjusting the Tension of the Upper Alignment Plate Drive Timing Belt

- 1. Tool
 - Screwdriver (Phillips)
- 2. Adjustment method
 - a. Preparation

Step	Operation
1	If the upper alignment plate drive belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

- b. Adjustment

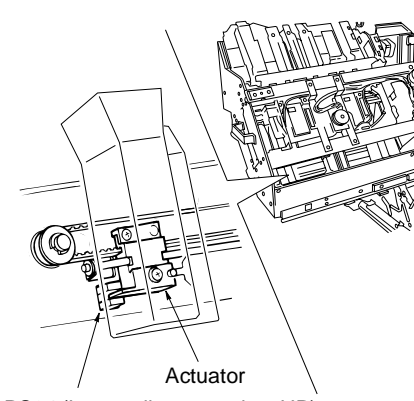
Step	Operation
1	Loosen the 2 set screws (see illustration).
2	<p>Move the belt tensioner so that the end is aligned with the center mark on the scale, and retighten the screws.</p>  <p>Belt tensioner</p> <p>Screws Scale</p>

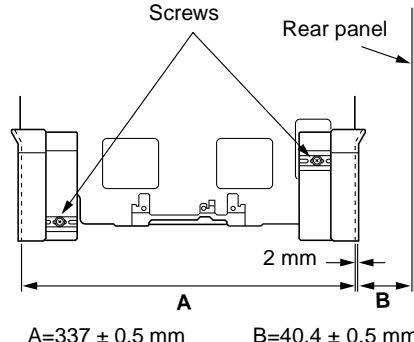
[24] FNS Adjusting the Mount Location of the Lower Alignment Plates (FN-7 only)

1. Tool
- Screwdriver (Phillips)
 - Scale
2. Adjustment method
- a. Preparation

Step	Operation
1	Open the front cover and pull out the stacker/stapler unit.

- b. Adjustment

Step	Operation
1	<div>Move the lower alignment plates into home position. (Move so that the actuator on the lower-alignment plate drive belt is at PS24 (lower-alignment plate HP).</div> <div></div>

Step	Operation
2	<div>Loosen the 2 set screws fixing the lower alignment plates in place (one screw on each plate), and adjust the plates so that distances A and B are within specification. Spec values: A = 337 ± 0.5 mm B = 40.4 ± 0.5 mm</div> <div></div>
3	Retighten the screws.

[25] FNS Adjusting the Tension of the Lower Alignment Plate Drive Timing Belt (FN-7 only)

1. Tool

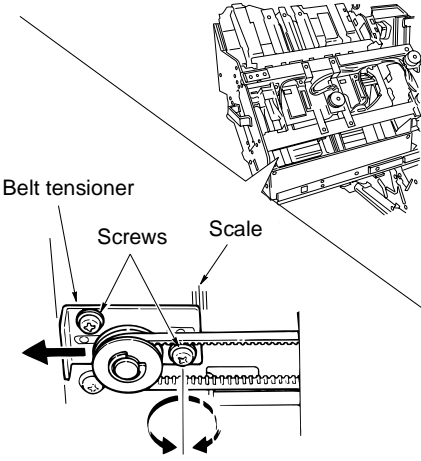
- Screwdriver (Phillips)

2. Adjustment method

a. Preparation

Step	Operation
1	If the lower alignment plate drive belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

b. Adjustment

Step	Operation
1	Loosen the 2 set screws (see illustration).
2	Move the belt tensioner so that the end is aligned with the center mark on the scale, and retighten the screws. 

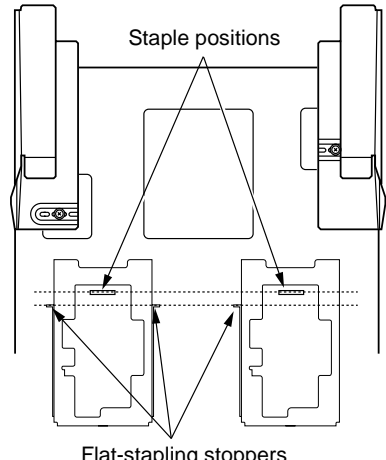
[26] FNS Adjusting the Stapling Position (Flat Stapling)

1. Tool

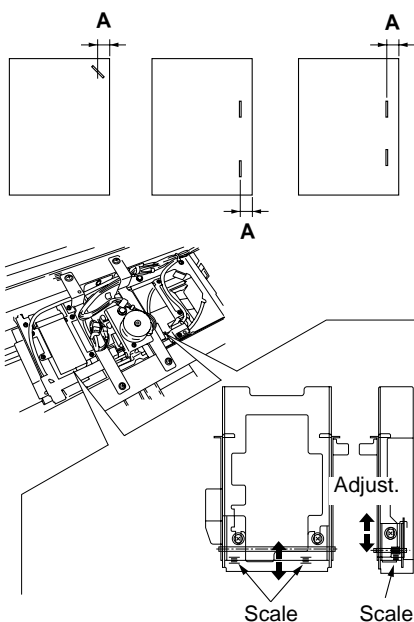
- Screwdriver (Phillips)
- Scale

2. Adjustment method

a. Preparation

Step	Operation
1	Check whether the virtual line running between the stoppers is parallel to the virtual line between the staplers. 
2	If the lines are not parallel or if you need to change the stapling position, carry out adjustment as described below.

b. Adjustment

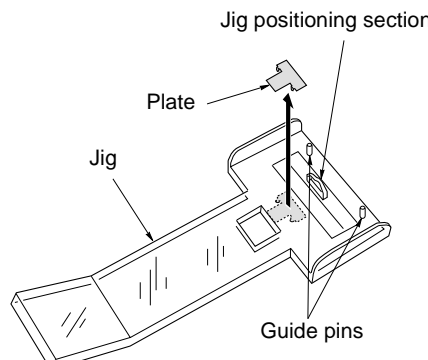
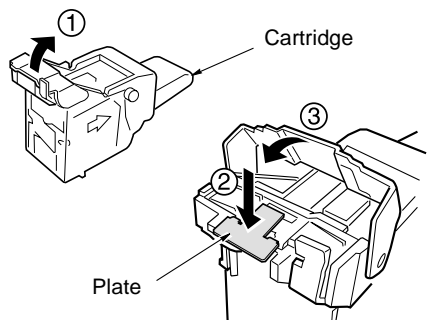
Step	Operation
1	<p>Loosen the 3 set screws holding the flat-stapling stopper bracket in place, and position the bracket so that distance A is within the specification range.</p> <p>Spec range: A = 5.5 to 11.5mm (initial value = 8.5mm)</p> 
2	Hold paper against the stoppers and confirm that all three stoppers are in alignment.
3	Execute stapling to confirm that the stopper line and stapler line are parallel.

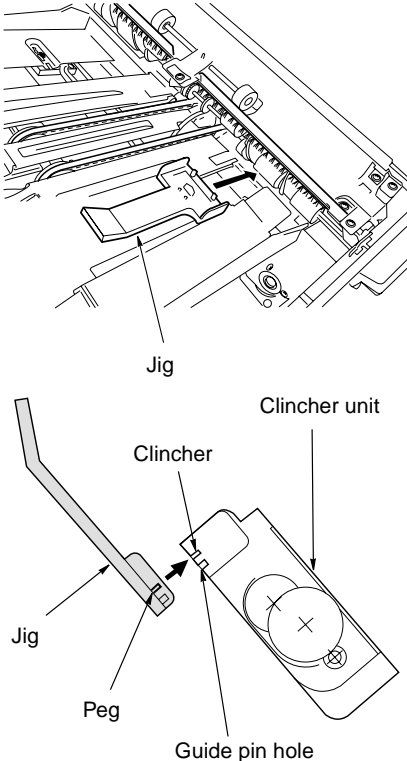
[27] FNS Adjusting the Stapler Vertical Positioning (FN-7 only)

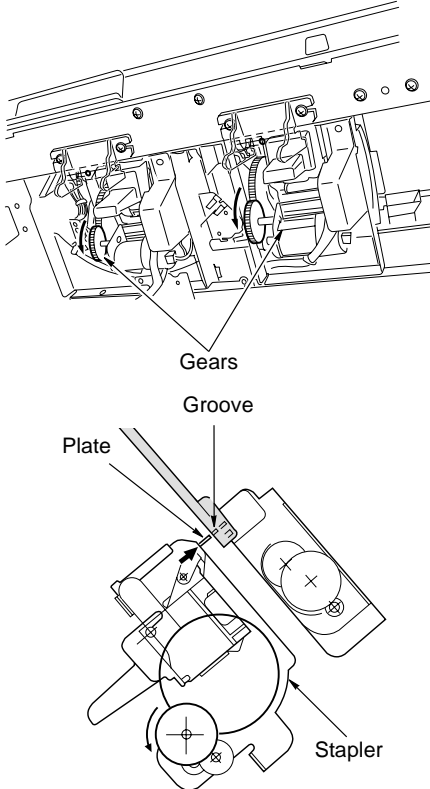
1. Tool
- Screwdriver (Phillips)
 - Jig (special tool)
2. Adjustment method
- a. Preparation

Step	Operation
1	When replacing or reinstalling a stapler or clincher, adjust the vertical alignment as described below.

b. Adjustment

Step	Operation
1	If installing a stapler, mount the stapler into place.
2	Loosely fasten the clincher in place with 4 screws. (If the clincher is already fastened in place, loosen the 4 screws so that you can adjust it.)
3	<p>Remove the plate from the jig.</p> 
4	<p>Remove the cartridge, and install the plate that you took from the jig.</p> 

Step	Operation
5	<p>Install the cartridge.</p> <p>Caution: Remove the remaining staples on the upper surface. Remove the staple sheet if it is bent.</p>
6	<p>Insert the two guide pins of the jig in the guide pin holes, and engage the end of the positioning portion of the jig with the clincher.</p> <p>Caution: The positioning portion of the jig need not be engaged with the clincher completely. Only part of the end of the positioning portion must be engaged so long as it is not disengaged.</p>  <p>Jig</p> <p>Clincher unit</p> <p>Clincher</p> <p>Jig</p> <p>Peg</p> <p>Guide pin hole</p>

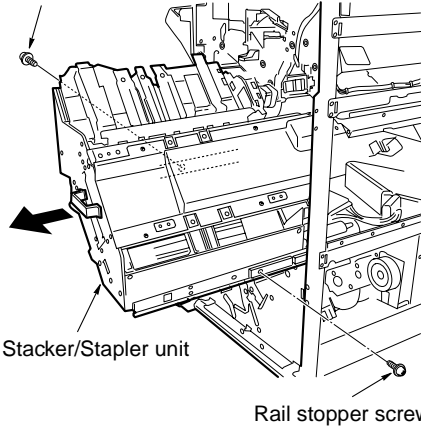
Step	Operation
7	<p>Rotate the stapler gears downward. Adjust the clincher position so that the plate on the cartridge fits smoothly into the groove on the jig. Rotate the stapler gear further to fit the plate in the groove in the jig and the jig in the clincher unit completely.</p>  <p>Gears</p> <p>Groove</p> <p>Plate</p> <p>Stapler</p>
8	<p>Tighten the 4 clincher screws to fasten the clincher into place.</p>
9	<p>Rotate the stapler gears back upwards, and remove the jig.</p> <p>Caution: When removing the jig, be careful not to break the miler of the clincher unit.</p>
10	<p>Remove the plate from the cartridge and set it back into the jig.</p>
11	<p>Reinstall the cartridge and check that stapler operates correctly.</p>

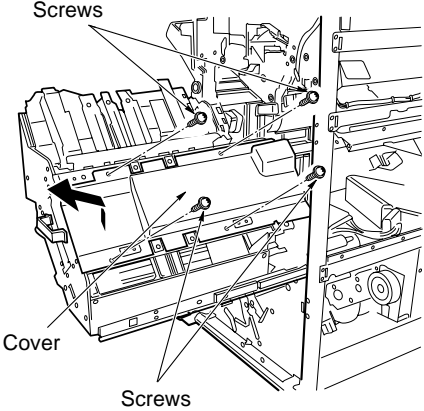
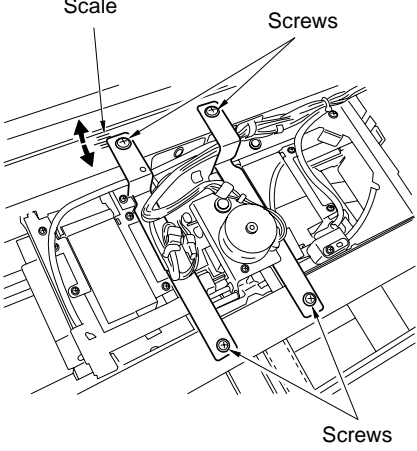
[28] FNS Adjusting the Angle of the Stapling Stopper (FN-7 only)

1. Tool
- Screwdriver (Phillips)
2. Adjustment method
- a. Preparation

Step	Operation
1	If the staple orientation is not parallel with the paper edge, adjust as described below.

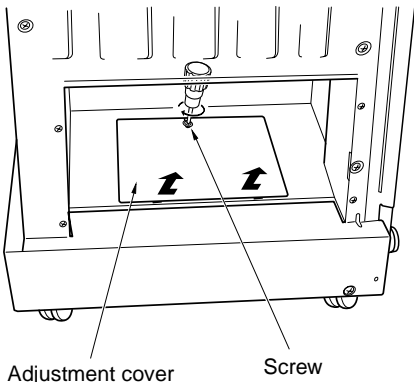
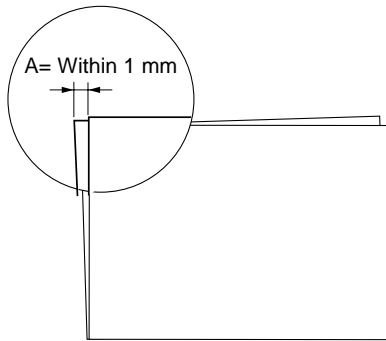
- b. Adjustment

Step	Operation
1	Open the front cover and pull the stacker/stapler unit part of the way out.
2	<div>Remove the 2 rail stopper screws. Then pull the stacker/stapler unit all of the way out.</div> <div><p>Rail stopper screw</p><p>Stacker/Stapler unit</p><p>Rail stopper screw</p></div>

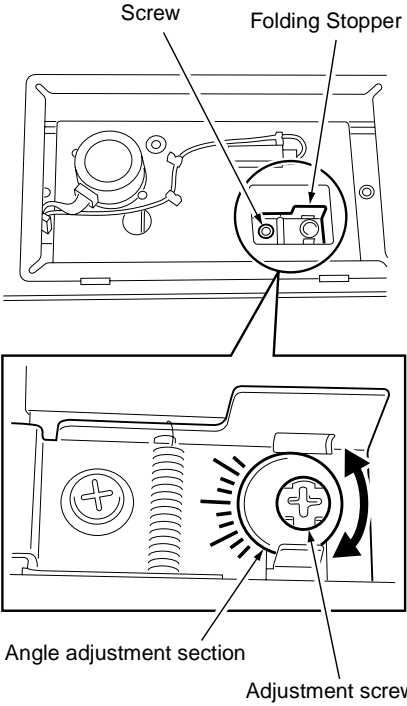
Step	Operation
3	<div>Remove the 4 set screws holding the cover in place, and remove the cover.</div> <div><p>Screws</p><p>Cover</p><p>Screws</p></div>
4	Loosen 4 more set screws.
5	<div>Rotate the stapling and folding stopper assembly as necessary to adjust the alignment.</div> <div><p>Scale</p><p>Screws</p><p>Screws</p></div>
6	Retighten the screws.

[29] FNS Adjusting the Angle of the Folding Stopper (FN-7 only)

1. **Tool**
 - Screwdriver (Phillips)
 - Screwdriver (Phillips, stubby)
2. **Adjustment method**
 - a. Preparation

Step	Operation
1	Connect the finisher to the main body.
2	Load A3 paper into the main body.
3	Remove the screw, and remove the paper exit guide plate adjustment cover.  <p>Adjustment cover Screw</p>
4	Check whether the following conditions hold. <ul style="list-style-type: none"> • Check that the fold line (the folding stopper) is perpendicular to the conveyance direction. • Check that the fold side discrepancy (for A3 paper) is within the limit. Limit: A = within 1 mm  <p>A= Within 1 mm</p>
5	If either or both of the above conditions does not hold, adjust as described below.

b. Adjustment

Step	Operation
1	Take a fold sample using A3 paper.
2	Check the discrepancy along the folded set's trailing edge, and use this information to judge the direction and amount by which the stopper angle must be corrected.
3	Loosen one folding stopper screw.
4	Using the marking as a guide, adjust the folding stopper angle with adjustment screw to the extent of discrepancy.  <p>Screw Folding Stopper</p> <p>Angle adjustment section Adjustment screw</p>
5	When the position of the folding stopper is decided, secure the set screws holding the stopper in place.
6	Take another sample and check the discrepancy.
7	Repeat steps (3) and (5) until the discrepancy is within the specified limit.
8	Install the adjustment cover after this adjustment is completed.

[30] FNS Adjusting the Tension of the Stapler Movement Timing Belt (FN-7 only)

1. Tool

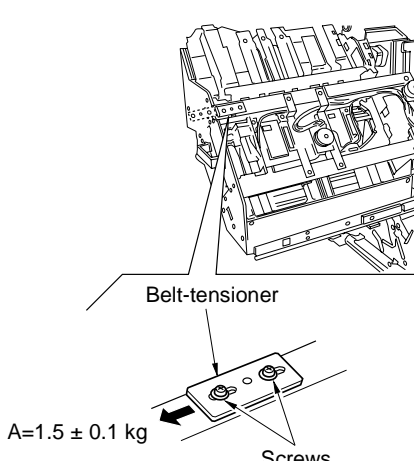
- Flat-nose pliers
- Tension gauge or spring balance

2. Adjustment method

a. Preparation

Step	Operation
1	If the belt tensioner has become loose as a result of belt replacement or for some other reason, adjust as described below.

b. Adjustment

Step	Operation
1	Loosen the 2 screws holding the belt-tensioner in place.
2	<p>Using a tension gauge or spring balance, pull the belt-tensioner so that tension A is at the value indicated below. Maintain this tension while retightening the screws.</p> <p>Spec value for tension: $A = 1.5 \pm 0.5 \text{ kg}$</p> 

[31] FNS Adjusting the Tension of the Stapler Rotation Timing Belt (FN-7 only)

1. Tool

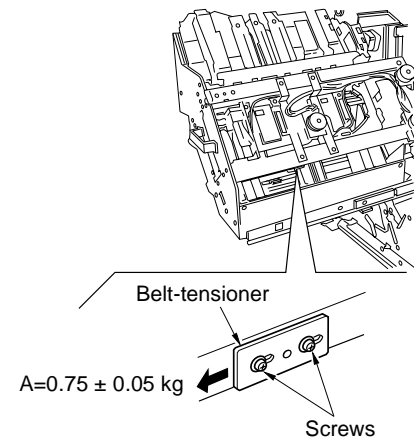
- Flat-nose pliers
- Tension gauge or spring balance

2. Adjustment method

a. Preparation

Step	Operation
1	If the belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

b. Adjustment

Step	Operation
1	Loosen the 2 screws holding the belt-tensioner in place.
2	<p>Using a tension gauge or spring balance, pull the belt-tensioner so that tension A is at the value indicated below. Maintain this tension while retightening the screws.</p> <p>Spec value for tension: $A = 0.75 \pm 0.05 \text{ kg}$</p> 

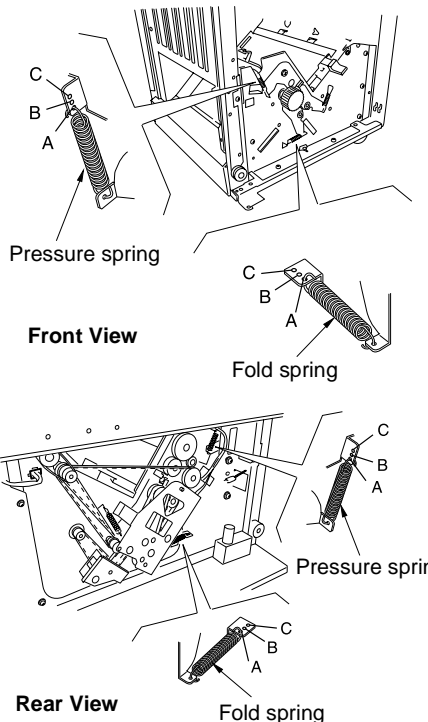
[32] FNS Adjusting the Folding Force (FN-7 only)

1. Adjustment method

a. Preparation

Step	Operation
1	If necessary, you can change the force of the folding and pressure rollers as described below. Caution: If changing the forces, be sure to make the same change for all rollers at the same time.

b. Adjustment

Step	Operation
1	<p>Set the springs as illustrated below; a pressure spring on the folding roller, and a fold spring on the pressure roller.</p> <p>Force: A = 7.8 kgf B = 8.9 kgf C = 10.0 kgf</p> <p>Caution: Be sure to attach the springs into like-labeled holes (either A, or B, or C).</p> 

[33] FNS Adjusting the Mount Location of the Folding Knife Motor (FN-7 only)

1. Tool

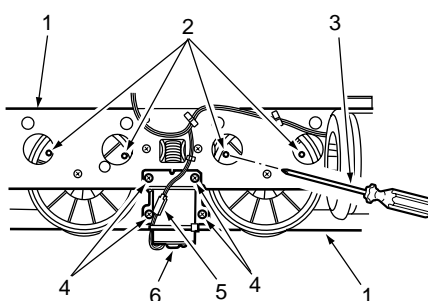
- Screwdriver (Phillips)

2. Adjustment method

a. Preparation

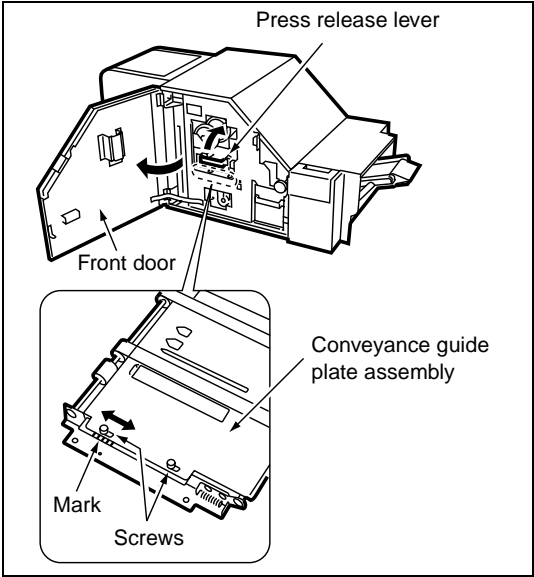
Step	Operation
1	Remove the finisher from the main body.

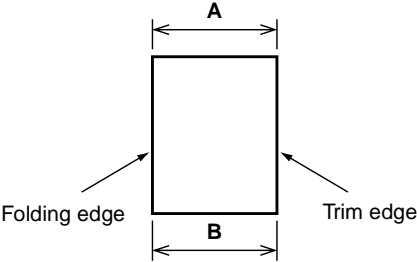
b. Adjustment

Step	Operation
1	Disconnect the connector and remove the folding knife motor from the mounting plate. (4 screws)
2	Align the round holes (four) in the left and right knife drive cams to the holes in the mounting plate, then insert the screwdriver or shaft.
3	Install the folding knife motor on the mounting plate (with four screws) and connect the connector.
4	<p>Remove the screwdriver or shaft used to secure the left and right knife drive cams.</p>  <p>1. Mounting plate 2. Round holes 3. Screwdriver (Phillips) 4. Screws 5. Connector 6. Folding knife motor</p>

[34] TU Trimming Parallelism Adjustment

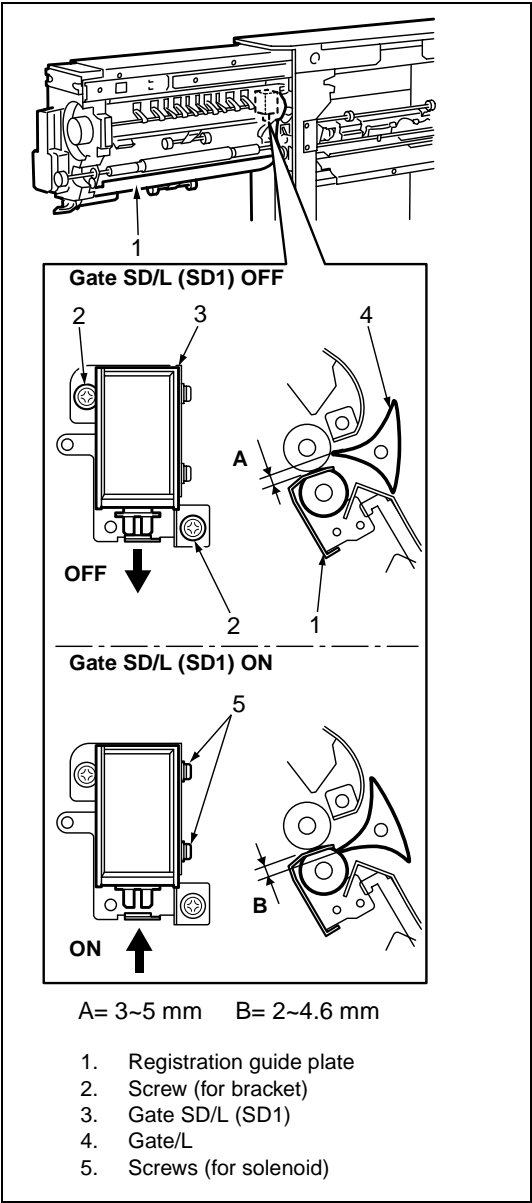
- 1. Tool
 - Screwdriver (Phillips)
- 2. Adjustment method

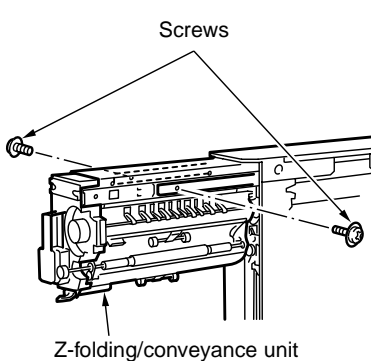


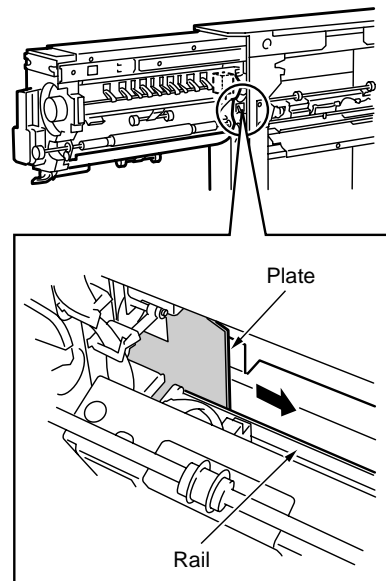
Step	Operation
1	Measure the lengths of the upper edge (A) and lower edge (B) of the trimmed booklet to obtain the parallelism. Parallelism = A - B 
2	Open the front door.
3	Raise the press release lever.
4	Loosen the two screws.
5	Adjust the conveyance guide plate assembly according to the mark so that the parallelism is within the spec. Standard: less than ± 1 mm
6	Tighten the two screws securely.

[35] Adjusting the PZ Paper-Path Switching Solenoid

- 1. Tool
 - Screwdriver (Phillips)
- 2. Adjustment method



Step	Operation
1	Open the front door of FNS, remove the front cover of ZK-2 (three screws), and remove ZK-2 from the main body.
2	Remove the AC cord and the rear cover (four screws).
3	<p>Pull out the z-folding/conveyance unit. Remove the two screws from the rail and further draw out the unit.</p>  <p>Screws</p> <p>Z-folding/conveyance unit</p>
4	Loosen two screws securing the solenoid bracket.
5	<p>Make sure that the gate solenoid/L (SD1) is OFF, and adjust the position of the solenoid bracket so that the gap between the gate tip and the registration guide plate is within the specification range. Fasten the two screws.</p> <p>Spec range: 3 to 5 mm (viewing)</p>
6	Loosen two screws securing the solenoid.
7	<p>Make sure that the gate solenoid/L (SD1) is ON, and adjust the position of the solenoid bracket so that the gap between the gate tip and the registration guide plate is within the specification range. Fasten the two screws.</p> <p>Spec range: 2 to 4.6 mm</p> <p>* The plunger must operate smoothly when the solenoid is turned ON or OFF.</p>

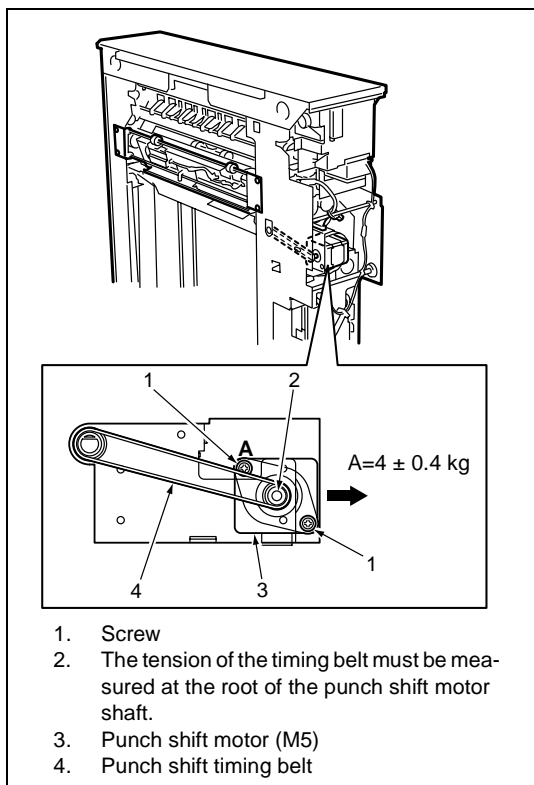
Step	Operation
8	<p>Reassemble in the opposite sequence to removal.</p> <p>Caution: The conveyance unit must be inserted so that the plate on the conveyance unit (see the figure below) is positioned in side the rail on the enclosure.</p>  <p>Plate</p> <p>Rail</p>

[36] Adjusting the Tension of the PZ Punch Shift Timing Belt

1. Tool

- Screwdriver (Phillips)
- Tension gauge or spring balance

2. Adjustment method



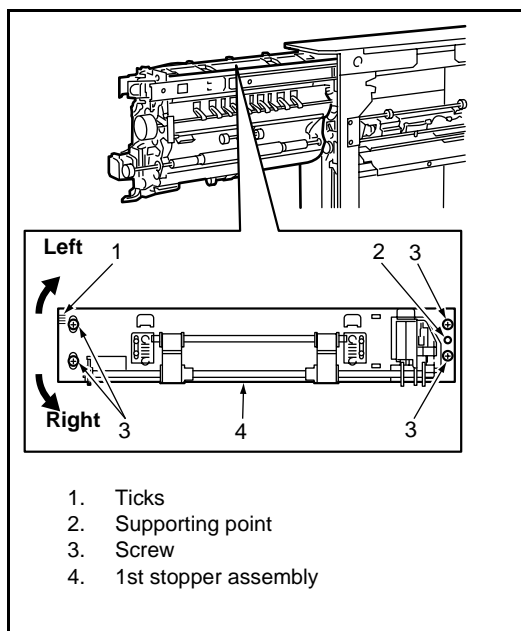
Step	Operation
1	Remove the PZ from the main body.
2	Remove the four screws to remove the rear cover.
3	Loosen the two screws holding the punch shift motor (M5).
4	Use a tension gauge or a spring balance to measure the tension at the A point. When a specification value is observed, tighten the screws. Spec value: $A = 4 \pm 0.4 \text{ kg}$ Note: The tension must be measured at the root of the motor shaft. Otherwise, the measuring operation may cause the shaft to bend.
5	Reinstall the rear cover using four screws.

[37] Adjusting the 1st Folding Skew

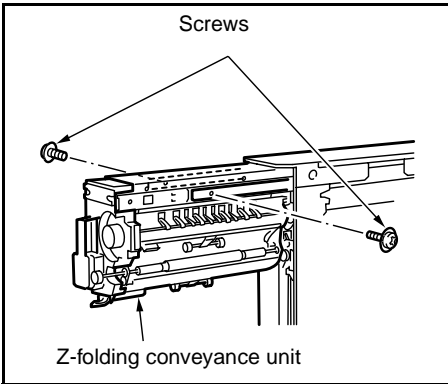
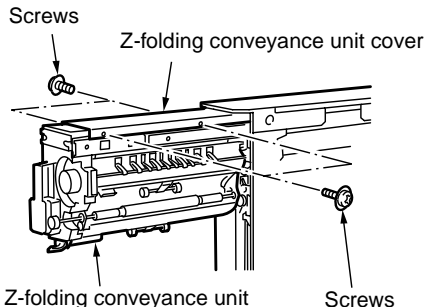
1. Tools

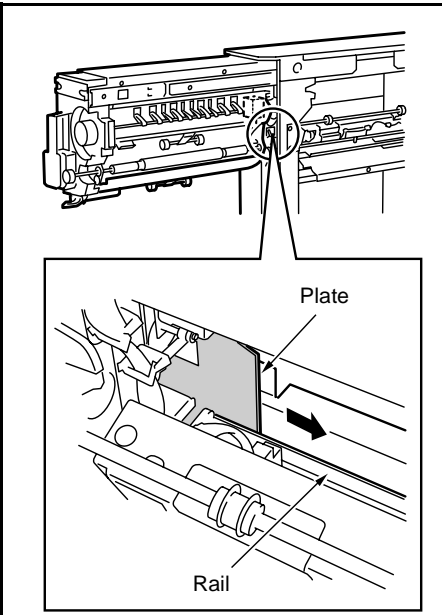
- Screwdriver (Phillips)

2. Adjustment Method



Step	Operation
1	Set A3 paper into the tray.
2	Set the original chart and make a copy of it. Check the copy for a possible folding skew. Spec range: within 0.5 mm <div style="text-align: center;"> <p>1st folding</p> <p>0.5 mm or less</p> <p>0.5 mm or less</p> <p>Skew pattern A Skew pattern B</p> </div> <p>If the folding skew is outside the spec range, adjust according to the instructions described in the following steps.</p>
3	Open the front door of the FNS.

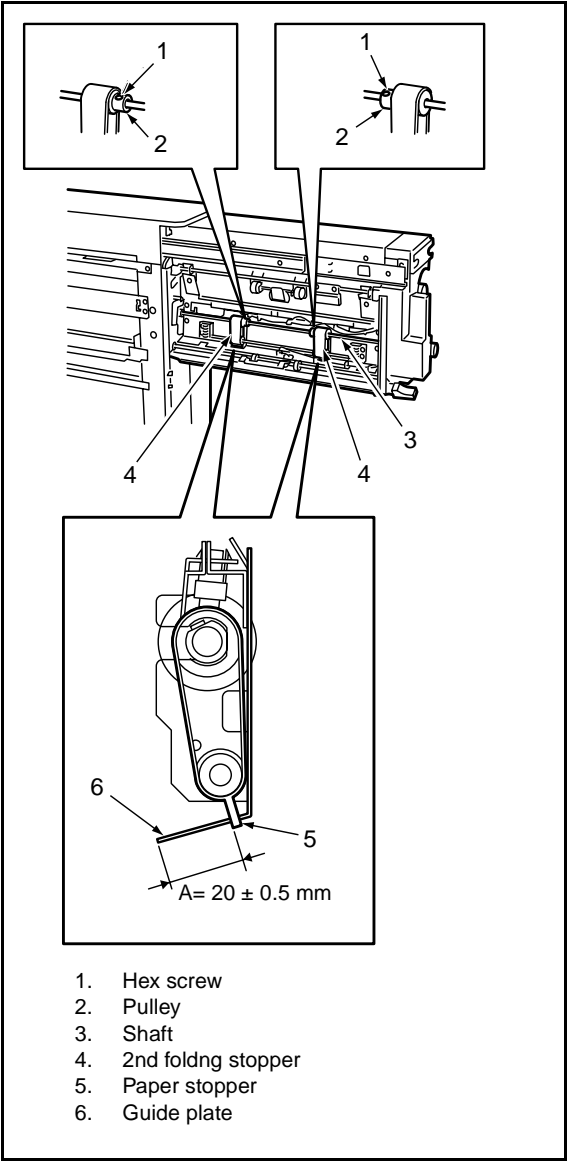
4	<p>Pull out the z-folding/conveyance unit. Remove two screws from the rail and further draw out the conveyance unit.</p>  <p>Screws</p> <p>Z-folding conveyance unit</p>
5	<p>Remove four screws to remove the z-folding/conveyance unit cover.</p>  <p>Screws</p> <p>Z-folding conveyance unit cover</p> <p>Z-folding conveyance unit</p> <p>Screws</p>
6	<p>Loosen four screws securing the 1st folding stopper assembly.</p>
7	<p>Make adjustments by moving the 1st stopper assembly right or left using the ticks for reference.</p> <p>Skew pattern A: Move the 1st stopper assembly to the left.</p> <p>Skew pattern B: Move the 1st stopper assembly to the right.</p>
8	<p>Temporarily tighten four screws holding the 1st stopper assembly, and put the conveyance unit into the basis position. Make a copy of the adjustment chart to check for 1st folding skew.</p>
9	<p>Repeat Steps 6 to 8 until the 1st folding skew falls within the spec range (0.5 mm or less).</p>
10	<p>Tighten firmly four screws on the 1st stopper assembly.</p>

11	<p>Reassemble in the opposite sequence to removal.</p> <p>Note: The conveyance unit must be inserted so that the plate on the conveyance unit (see the figure below) is positioned in side the rail on the enclosure.</p>  <p>Plate</p> <p>Rail</p>
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[38] Adjusting the Position of the 2nd Folding Stopper

Note: This adjustment affects the 2nd folding skew. Therefore, first complete this adjustment and then proceed to the [15] Adjusting the 2nd Folding Skew section.

- 1. **Tools**
 - Screwdriver (Phillips)
 - Hex wrench
- 2. **Adjustment Method**



Step	Operation
1	Set paper into the tray and make a copy (required to place the paper stopper at its HP position).
2	Open the front door of the FNS and draw out the conveyance unit.
3	Make sure that the distance between the edge of the guide plate and the paper stopper is within the specification range. Spec range: A = 20 ± 0.5 mm If the distance is outside the spec range, adjust according to the instructions described in the following step.
4	Loosen the screws holding the pulleys and adjust the distance by rotating the pulleys. Tighten the screws. Note: Do not rotate the shaft on which the pulleys are attached. If it is rotated for some reason, the stopper is placed out of its HP position. Then perform the procedure again from Step 1.

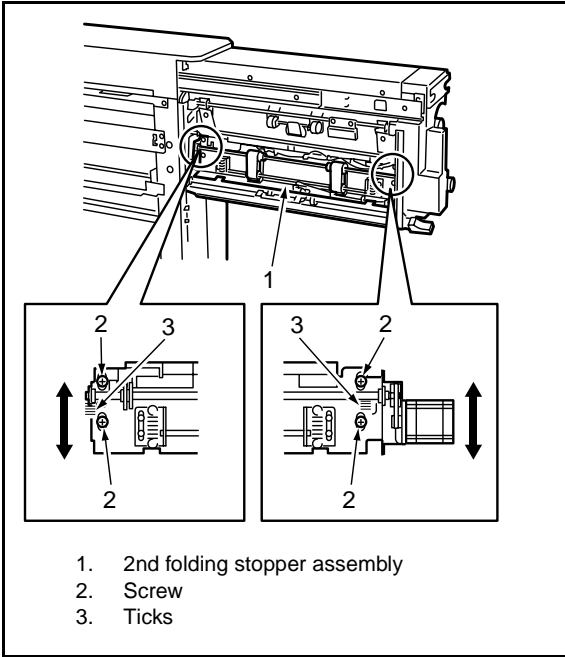
[39] Adjusting the 2nd Folding Skew 2nd Stopper Assembly

Note: Before beginning this operation, complete the adjustment described in the [14] Adjusting the Position of the 2nd folding Stopper section.

1. Tools

- Screwdriver (Phillips)

2. Adjustment Method



3	Open the front door of the FNS and draw out the conveyance unit.
4	Loosen the four screws holding the 2nd stopper assembly.
5	Make adjustments by moving the front or rear side of the 2nd stopper assembly upward using the ticks for reference. Skew pattern A: Move the rear side of the 2nd stopper assembly upward. Skew pattern B: Move the front side of the 2nd stopper assembly upward.
6	Temporarily tighten the four screws holding the 2nd stopper assembly, and put the conveyance unit into the basis position. Make a copy of the adjustment chart to check for 2nd folding skew.
7	Repeat Steps 4 to 6 above until the 2nd folding skew falls within the spec range (2 mm or less).
8	Tighten firmly the four screws on the 2nd stopper assembly.

Step	Operation
1	Set A3 paper into the tray.
2	<p>Set the original chart and make a copy of it. Check the copy for a possible folding skew. Spec range: within 2 mm</p> <p>Skew pattern A Skew pattern B</p> <p>If the folding skew is outside the spec range, adjust according to the instructions described in the following steps.</p>


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SERVICE

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
Before starting maintenance, ask a user and collect information about troubles that occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.
2. Copy sample
Be sure to make copy samples at the start and the end of maintenance for checking images.
3. Drum
 - a) Never expose the drum to the sunlight. Be also careful not to expose a drum to indoor light as far as possible. When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
 - b) When replacing a drum or cleaning blade, refer to the Item mounting/dismounting of a cleaning blade for doing a replacement work.
4. When replacing the drum and developer, must perform necessary adjustment by referring to the List of Adjustment Items.
5. After having completed maintenance work, must reset the PM counter (using the 25 mode).
6. When replacing the fixing cleaning web, developer, drum and cleaning blade be sure to enter the 25 mode and select "Copy Count by Parts to be Replaced" to reset counter.
7. When replacing a toner cartridge, wait until the toner supply LED on the operation panel flashes before the replacement.

 **Caution: Turn the main switch off and pull out the power plug without fail before the work of maintenance.**

SERVICE SCHEDULE

[1] Service Schedule

	Service item	Numbe of copies	Guarantee period (5 years or 30,000,000 copies) ×10,000 copies																									Service count				
			0	50	100	150	200	250	300	350	400	450	500	550	600		2650	2700	2750	2800	2850	2900	2950									
Main body	Maintenance	Every 500,000 copies		1		1		1		1		1		1		1		1		1		1		1		1		1		1		59 times
	Periodic check (I)	Every 1,000,000 copies			1			1			1			1			1			1			1			1				1		29 times
	Periodic check (II)	Every 3,000,0000 copies							1						1					1											9 times	
	Periodic check (III)	Every 4,500,0000 copies										1									1										6 times	
	Periodic check (IV)	Every 6,000,000 copies														1						1									4 times	
	Periodic check (V)	Every 10,000,000 copies																						1							2 times	
RADF EDH-5	Maintenance	Every 500,000 copies		1		1		1		1		1		1		1		1		1		1		1		1		1		1		59 times
	Periodic check (I)	Every 1,00,000 copies			1			1			1			1			1			1			1			1				1		29 times
	Periodic check (II)	Every 2,500,000 copies						1						1						1					1						11 times	
FNS FN-115	Maintenance	Every 500,000 copies		1		1		1		1		1		1		1		1		1		1		1		1		1		1		59 times
	Periodic check (I)	Every 1,00,000 copies			1			1			1			1			1			1			1			1				1		29 times
	Periodic check (II)	Every 6,000,000 copies														1						1									11 times	
FNS FN-7	Maintenance	Every 500,000 copies		1		1		1		1		1		1		1		1		1		1		1		1		1		1		59 times
	Periodic check (I)	Every 1,00,000 copies			1			1			1			1			1			1			1			1				1		29 times
	Periodic check (II)	Every 6,000,000 copies															1						1								11 times	

[2] Maintenance Items

Note: The Part Number supported may change in the future.

1. Main body (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Preparation	(1) Image check			1			
2	Fixing unit	(1) Fixing separation claws (upper and lower) cleaning		1				
		(2) Fixing cleaning web (25 mode counter resetting) 4014-3030-xx	1				1	
3	Drum carriage	(1) Charging corona unit, cleaner, and developing unit, sensor support stay assembly, drum removal						
		(2) Drum carriage inside cleaning(including drum fixing coupling surface)		1				
		(3) Separation claw replace 4014-3013-xx	3				1	
		(4) Drum replacement (25 mode counter resetting)	1		1		1	
4	Cleaner	(1) Cleaner unit cleaning		1				
		(2) Cleaning blade 4027-1359-xx (25 mode counter resetting) (36 mode blade setting mode)	2				1	
		(3) Fur brush 4014-3032-xx	1				1	
		(4) Scattering prevention felt 4014-3020-xx	1				1	
		(5) Installation on drum carriage						
5	Charging corona unit	(1) Charging corona unit/PCL cleaning		1				
		(2) Charging wire 4014-3010-xx	2				1	
		(3) Charging wire unit vibration proof rubber 4014-3003-xx	2				1	
		(4) Charging control plate 4014-3009-xx	1				1	
		(5) Charging wire cleaning unit 4014-3022-xx	2				1	
		(6) Resin ring (f2) 4014-1750-xx	2				1	
		(7) Installation on drum carriage						
6	Developing unit	(1) Developing wire unit cleaning		1				
		(2) Suction filter 4014-3014-xx	1					
		(3) Developer replacement (25 mode counter resetting)	1		1		1	
		(4) Installation on drum carriage						

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replac-ement	
7	Transfer / separation corona	(1) Transfer separation corona unit cleaning		1				
		(2) Transfer/separation wire 4014-3011-xx	3				1	
		(3) Transfer wire cleaning unit 4027-1317-xx	1				1	
		(4) Separation wire cleaning unit/1 4027-1318-xx	1				1	
		(5) Separation wire cleaning unit/2 4027-1319-xx	1				1	
		(6) Transfer/separation vibration proof rubber 4014-3012-xx	3				1	
		(7) Resin ring (f2) 4014-1750-xx	3				1	
8	Registration	(1) Paper dust removing brush/registration roller/others cleaning		1				
		(2) Mis-centering detection sensor cleaning		1				
9	ADU	(1) Horizontal conveyance roller/others cleaning		1				
		(2) Paper reverse/exit entrance guide plate cleaning		1				
10	Tray	(1) Paper dust removing brush (500-sheet tray)		1				
		(2) Paper dust removing brush (1000-sheet tray)		1				
		(3) Paper feed detection sensor cleaning		1				
		(4) Paper pre-registration detection sensor cleaning		1				
11	By-pass Tray	(1) Trailing edge size detection sensor cleaning		1				
12	Read	(1) Platen glass cleaning		1				
		(2) Slit glass cleaning		1				
		(3) Mirror cleaning		1				
13	Main body	(1) Exterior and interior cleaning		1				
14	Toner supply	(1) Cartridge insertion opening cleaning		1				
15	Final check	(1) W.U.T. check			1			
		(2) Image and paper feeding check (including vertical magnification adjustment and timing adjustment)			1			
		(3) PM counter resetting (25 mode)			1			

2. RADF [EDH](Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Cleaning	Inspection	Lubrication	Replacement	
1	Preparation	(1) Paper feeding check			1			
		(2) Exterior			1			
2	Paper feed section	(1) Size detection sensor 1		1				
		(2) Size detection sensor 2		1				
		(3) Size detection sensor 3		1				
		(4) Registration sensor		1				
		(5) Registration mirror						
		(6) Paper feed roller		1				
		(7) Separation roller		1				
		(8) Double feed prevention roller		1				
		(9) Separation assist roller		1				
		(10) Double feed prevention roller rubber		1				
		(11) Cleaning pad		1				
		(12) Registration roller		1				
3	Conveyance section	(1) Read sensor		1				
		(2) Read sensor mirror		1				
		(3) Skew sensor (F)		1				
		(4) Skew sensor (F) mirror		1				
		(5) Skew sensor (R)		1				
		(6) Skew sensor (R) mirror		1				
		(7) Read roller		1				
		(8) paper exit roller 1		1				
4	Paper exit section	(1) Reversal sensor/left sensor		1				
		(2) Reversal sensor/left sensor mirror		1				
		(3) Reversal sensor/middle sensor		1				
		(4) Reversal sensor/middle sensor mirror		1				
		(5) Reversal sensor/right sensor		1				
		(6) Reversal sensor/right sensor mirror		1				
		(7) Reversal roller		1				
		(8) Reverse conveyance roller 1		1				
		(9) Reverse conveyance roller 2		1				
		(10) Paper exit roller 2		1				
		(11) Reversal paper exit roller		1				
5	Final check	(1) Paper feeding check			1			
		(2) Exterior cleaning		1				

3. FNS [FN-115] (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replac-ement	
1	Preparation	(1) Paper feeding check			1			
2	Conveyance section	(1) Conveyance roller		1				
		(2) Conveyance cleaning brush 4376-1110-xx	2				1	
3	Paper exit section	(1) Paper exit roller/A (sponge roller) 4014-1055-xx	10				1	
		(2) Cleaning of area around paper exit roller A		1				
4	Drive section	(1) Main drive unit			1	(1)		*1
		(2) Tray up unit			1	(1)		*1
		(3) Shift drive unit			1	(1)		*1
		(4) Paper exit drive unit			1	(1)		*1
		(5) Staple unit			1	(1)		*1
5	Stapler unit	(1) Staple cartridge (Staple for 100) (5,000 staples/cartridge)	2		1		(1)	Replace as necessary
6	Final check	(1) Exterior cleaning		1	1			
		(2) Paper through check			1			*2

*1 If abnormal sound is heard due to insufficient oil, lubricate it.

*2 Check if the staple is clinched correctly.

Note: The Part Number supported may change in the future.

4. FNS [FN-7] (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Cleaning	Inspection	Lubrication	Replacement	
1	Preparation	(1) Paper feeding check			1			
2	Conveyance section	(1) Conveyance roller		1				
		(2) Conveyance cleaning brush 4376-1110-xx	2				1	
3	Paper exit section	(1) Paper exit roller/A (sponge roller) 4014-1055-xx	10				1	
		(2) Cleaning of area around paper exit roller A		1				
4	Drive section	(1) Main drive unit			1	(1)		*1
		(2) Tray up unit			1	(1)		*1
		(3) Shift drive unit			1	(1)		*1
		(4) Paper exit drive unit			1	(1)		*1
		(5) Staple unit			1	(1)		*1
		(6) Folding unit			1	(1)		*1
5	Folding unit	(1) Flat belt			1			
		(2) Folding roller		1				
		(3) Pressure roller		1				
6	Stapler unit	(1) Staple cartridge (5,000 staples/cartridge)	2		1		(1)	Replace as necessary
7	Final check	(1) Exterior cleaning		1	1			
		(2) Paper through check			1			*2

*1 If abnormal sound is heard due to insufficient oil, lubricate it.

*2 Check if the staple is clinched correctly.

Note: The Part Number supported may change in the future.

5. LCT [C-403/404](Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replac-ement	
1	Preparation	(1) Paper feeding check			1			
2	Inside of machine	(1) Paper dust removing brush cleaning		1				
		(2) Feed sensor cleaning		1				
		(3) Pre-registration sensor cleaning		1				
3	Final check	(1) Paper feeding check			1			
		(2) Exterior cleaning		1				

Note: The Part Number supported may change in the future.

6. Cover Inserter C (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replac-ement	
1	Conveyance section	(1) Conveyance roller		1				
2	Paper feed section	(1) Paper feed roller		1				*1
		(2) Feed roller unit/B 4014-3153-xx	1				1	Actual replacement count:100K feeds *1
		(3) Double feed prevention roller unit 4014-3121-xx	1				1	
3	Final check	(1) Paper feeding check			1			
		(2) Exterior cleaning		1	1			

*1 If abnormal sound is heard due to insufficient oil, lubricate it.

Note: The Part Number supported may change in the future.

7. TMG-2 (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replac-ement	
1	Conveyance section	(1) Conveyance roller		1				
		(2) Conveyance belts		1				
2	Trimmer section	(1) Upper knife		1				Check and clean the remaining scraps.
		(2) Lower knife			1			
		(3) Paper scraps box and its area			1			
3	Stacker section	(1) Pusher section			1	(1)		*1
		(2) Stacker section			1	(1)		*1
4	Drive section	(1) Conveyance drive section			1			
5	Final check	(1) Paper feeding check			1			
		(2) Exterior cleaning		1				

*1 If abnormal sound is heard due to insufficient oil, lubricate it.

8. PK-3 (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Punch section	(1) Punch die		1				
2	Conveyance section	(1) Entrance guide plate/A		1				
		(2) Trailing edge detect section (Entrance guide plate/B)		1				
		(3) Registration roller		1				*1
		(4) Conveyance drive roller		1				*1
		(5) Exit conveyance roller		1				*1
		(6) Exit guide plate/A		1				
3	Finisher side	(1) Conveyance guide plate/B		1				
4	Punch scraps conveyance section	(1) Punch scraps box		1				*1
5	Final check	(1) Paper through check			1			
		(2) Internal cleaning		1				

*1 Check and clean the remaining punch scraps.

9. ZK-2 (Every 500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Punch section	(1) Punch die		1				
2	Conveyance section	(1) Entrance guide plate/A		1				
		(2) Trailing edge detect section (Entrance guide plate/B)		1				
		(3) Registration roller		1				*1
		(4) Conveyance drive roller		1				*1
		(5) Exit conveyance roller		1				*1
		(6) Exit guide plate/A		1				
3	Finisher side	(1) Conveyance guide plate/B		1				
4	Punch scraps conveyance section	(1) Punch scraps box		1				*1
5	Final check	(1) Paper through check			1			
		(2) Internal cleaning		1				

*1 Check and clean the remaining punch scraps.

[3] Main Body Periodic Inspection Items

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Tray	(1) Paper feed roller (500-sheet tray) 4014-3026-xx	2				1	Actual replacement count: 300K feeds
		(2) Feed roller (500-sheet tray) 4014-3027-xx	2				1	
		(3) Double feed prevention roller (500-sheet tray) 4014-3026-xx	2				1	
		(4) Paper feed roller (1000-sheet tray) 4014-3028-xx	1				1	Actual replacement count: 500K feeds
		(5) Feed roller (1000-sheet tray) 4014-3029-xx	1				1	
		(6) Double feed prevention roller (1000-sheet tray) 4014-3028-xx	1				1	
2	By-pass tray	(1) Paper feed roller (bypass tray) 4014-3026-xx	1				1	Actual replacement count: 200K feeds
		(2) Feed roller (bypass tray) 4014-3027-xx	1				1	
		(3) Double feed prevention roller (bypass tray) 4014-3026-xx	1				1	
3	Fixing unit	(1) Fixing upper roller 4027-1353-xx	1				1	
		(2) Fixing lower roller assembly 4027-1351-xx	1				1	
		(3) Fixing claw (upper) 4014-3017-xx	6				1	
		(4) Fixing claw (lower) 4014-3002-xx	2				1	
		(5) Insulating sleeve (upper) 4014-3007-xx	2				1	
		(6) Upper roller bearing 4014-1747-xx	2				1	
		(7) Fixing cleaning sheet assembly 4027-1356-xx	1				1	
		(8) Heat roller cleaning		1				
4	Registration	(1) Registration sensor cleaning		1				
		(2) Leading edge detection sensor cleaning		1				
5	ADU	(1) Paper reverse/exit sensor cleaning		1				
		(2) ADU deceleration sensor cleaning		1				
		(3) ADU Pre-registration sensor cleaning		1				
6	Drum carriage	(1) Drum fixing spring 4014-1798-xx	1				1	
		(2) Spring position adjusting collar 4014-1662-xx	1				1	

Note: The Part Number supported may change in the future.

2. Periodic check (II) (Every 3,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Drum	(1) Drum temperature sensor 4027-1300-xx	1				1	
2	Transfer/separation corona unit	(1) Transfer/separation corona unit 4027-1315-xx	1				1	
3	Registration	(1) Registration roller 4014-2038-xx	1				1	
		(2) Registration bearing 4014-2172-xx	2				1	
		(3) Registration loop roller 4014-3167-xx	1				1	
		(4) Registration clutch 4014-2290-xx	1				1	
		(5) Registration motor shaft gear				1		
4	ADU	(1) Paper reverse/exit roller 1 4027-1286-xx	1				1	
5	Fixing	(1) Insulating sleeve (heating roller) 4014-3005-xx	2				1	
		(2) Heating roller bearing 4014-3006-xx	2				1	
		(3) Temperature sensor (upper roller fault) 4014-2300-xx	1				1	
		(4) Temperature sensor (heating roller fault) 4014-2302-xx	1				1	
		(5) Fixing heating roller 4014-3016-xx	1				1	
		(6) Exit actuator 4014-2125-xx	1				1	
		(7) Heater lamp L2 4014-3035-xx	2				1	
		(8) Heater lamp L3 4014-3036-xx	1				1	
		(9) Heater lamp L4 4027-1551-xx	1				1	
6	Main body	(1) Ozone filter 1 4014-1795-xx	2				1	
		(2) Ozone filter 2 4014-1843-xx	1				1	
7	Toner supply	(1) Toner supply sleeve 1 4014-3207-xx	1				1	
		(2) Toner supply sleeve 2 4014-3208-xx	1				1	

Note: The Part Number supported may change in the future.

3. Periodic check (III) (Every 4,500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Tray	(1) Feed clutch 4024-1028-xx	3				1	Actual replacement count: 3,000K feeds
		(2) 1st paper feed clutch 4024-1028-xx	3				1	

Note: The Part Number supported may change in the future.

4. Periodic check (IV) (Every 6,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Charging corona unit	(1) Charging corona unit 4014-3022-xx	1				1	
		(2) PCL 4014-3201-xx	1				1	
2	Developing unit	(1) Developing unit 4014-3025-xx	1				1	
3	Transfer/separation corona unit	(1) TSL 4014-2292-xx	1				1	
4	Vertical conveyance section	(1) Vertical conveyance clutch 4024-1028-xx	2				1	Actual replacement count: 4,500K feeds
		(2) Vertical conveyance roller (upper) 4014-2023-xx	1				1	
		(3) Passage detection sensor cleaning		1				
		(4) Exit sensor cleaning		1				
5	Fixing unit	(1) Fixing drive gear 2 4014-2237-xx	1				1	
		(2) Fixing web drive motor 4027-1379-xx					1	
6	ADU	(1) Pre-registration roller 4014-2051-xx	1				1	
		(2) ADU pre-registration bearing 4014-2174-xx	2				1	
		(3) Pre-registration loop roller 4014-2050-xx	1				1	
		(4) ADU exit roller 4014-2050-xx	1				1	
		(5) ADU reversal sensor cleaning		1				
		(6) Reversal entrance section roller 4014-2070-xx	1				1	
		(7) Paper reverse/exit roller 2 4027-1343-xx	1				1	
		(8) Paper reverse/exit roller 3 4027-1341-xx	1				1	
		(9) ADU reverse roller 4027-1287-xx	1				1	
		(10) ADU horizontal conveyance roller 1 4014-2050-xx	1				1	
		(11) ADU horizontal conveyance roller 2 4014-2050-xx	1				1	
		(12) ADU pre-registration clutch 4014-2290-xx	1				1	
7	Main body	(1) Paper exit sensor cleaning		1				

Note: The Part Number supported may change in the future.

5. Periodic check (V) (Every 10,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Vertical conveyance section	(1) Vertical conveyance roller (middle, lower) 4027-1334-xx	2				1	
2	ADU	(1) Sensor actuator 4027-1345-xx	3				1	
		(2) Guide part/Front 4014-2056-xx	1				1	
		(3) Guide part/Rear 4014-2057-xx	1				1	
		(4) Guide part 4014-2066-xx	4				1	
3	Tray	(1) Pre-registration roller (500-sheet tray, 1000-sheet tray) 4014-1948-xx	3				1	

[4] RADF [EDH-5]

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Paper feed section	(1) Feed roller rubber 4014-1446-xx	1				1	Actual replacement count: 200 K feeds
		(2) Paper feed roller rubber 4014-1447-xx	1				1	
		(3) Double feed prevention roller rubber 4014-1448-xx	1				1	
		(4) Separation assist roller 4014-1443-xx	1				1	

Note: The Part Number supported may change in the future.

2. Periodic check (II) (Every 2,500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Paper feed section	(1) Torque limiter 4014-3136-xx	1				1	Actual replacement count: 500 K feeds

Note: The Part Number supported may change in the future.

[5] FNS [FN-115]

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Stapler unit	(1) Stapler unit 4376-1065-xx	2				1	Actual replacement count: 200 K feeds each

2. Periodic check (II) (Every 2,500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Drive unit	(1) Paper feed motor (Tray up/down unit motor) 4014-3105-xx	1				1	Actual replacement count: 2,500 K feeds

Note: When the motor is removed by CE, please remove it holding the up/down tray to paper exit with hand.

[6] FNS [FN-7]

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Stapler unit	(1) Stapler unit 4377-1034-xx	2				1	Actual replacement count: 200 K feeds each

2. Periodic check (II) (Every 2,500,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Drive unit	(1) Paper feed motor (Tray up/down unit motor) 4014-3105-xx	1				1	Actual replacement count: 2,500 K feeds

Note: When the motor is removed by CE, please remove it holding the up/down tray to paper exit with hand.

[7] LCT [C-403/404]

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Inside of machine	(1) Paper feed roller 4014-3028-xx	1				1	Actual replacement count: 500 K feeds
		(2) Feed roller 4014-3029-xx	1				1	
		(3) Double feed prevention roller 4014-3028-xx	1				1	

2. Periodic check (II) (Every 3,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Inside of machine	(1) Feed clutch 4024-1028-xx	1				1	Actual replacement count: 3,000K feeds
		(2) Conveyance clutch 4024-1028-xx	1				1	

[8] PI [Cover Inserter C]

1. Periodic check (I) (Every 1,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Stapler unit	(1) Feed roller assembly/A 4014-3152-xx	3				1	Actual replacement count: 200 K feeds

[9] TU [TMG-2]

1. Periodic check (I) (Every 10,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Stapler unit	(1) Upper knife 4014-3051-xx	1				1	Actual replacement count: 500 K feeds
		(2) Lower knife 4014-3052-xx	1				1	

[10] PU [PK-3]

1. Periodic check (I) (Every 3,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Punch section	(1) Feed roller assembly/A 4014-2595-xx	1				1	Actual replacement count: 1.000K times
2	Punch scraps conveyance section	(1) Punch scraps conveyance 4014-2617-xx	1					

[11] PZ [ZK-2]

1. Periodic check (I) (Every 3,000,000 copies)

NO	Classification	Service item	Number of parts replaced	Implementation classification				Note
				Clea-ning	Inspe-ction	Lubric-ation	Replace-ment	
1	Punch section	(1) Feed roller assembly/A 4014-2595-xx	1				1	Actual replacement count: 1.000K times
2	Punch scraps conveyance section	(1) Punch scraps conveyance 4014-2617-xx	1					

[12] Replacement parts list

1. Main body

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Maintenance (Every 500,000 copies)	Charging wire	4014-3010-xx	2	500,000		
		Charging wire unit vibration proof rubber	4014-3003-xx	2	500,000		
		Fixing cleaning web	4014-3030-xx	1	500,000		
		Separation claw	4014-3013-xx	3	500,000		
		Cleaning blade	4027-1359-xx	2	500,000		
		Fur brush	4014-3032-xx	1	500,000		
		Scattering prevention felt	4014-3020-xx	1	500,000		
		Charging control plate	4014-3009-xx	1	500,000		
		Charging wire cleaning unit	4014-3022-xx	2	500,000		
		Resin ring (φ2)	4014-1750-xx	2	500,000		
		Suction filter	4014-3014-xx	1	500,000		
		Transfer/separation wire	4014-3011-xx	3	500,000		
		Transfer wire cleaning unit	4027-1317-xx	1	500,000		
		Separation wire cleaning unit/1	4027-1318-xx	1	500,000		
		Separation wire cleaning unit/2	4027-1319-xx	1	500,000		
		Transfer/separation vibration proof rubber	4014-3012-xx	3	500,000		
		Resin ring (φ2)	4014-1750-xx	3	500,000		

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
2	Periodic check (I) (Every 1,000,000 copies)	Paper feed roller (Tray1/500-sheet)	4014-3026-xx	1		300,000	31
		Feed roller (Tray1/500-sheet)	4014-3027-xx	1			32
		Double feed prevention roller (Tray1/500-sheet)	4014-3026-xx	1			32
		Paper feed roller (Tray2/500-sheet)	4014-3026-xx	1			36
		Feed roller (Tray2/500-sheet)	4014-3027-xx	1			37
		Double feed prevention roller (Tray2/500-sheet)	4014-3026-xx	1			37
		Paper feed roller (Tray3/1000-sheet)	4014-3028-xx	1		500,000	41
		Feed roller (Tray3/1000-sheet)	4014-3029-xx	1			42
		Double feed prevention roller (Tray3/1000-sheet)	4014-3028-xx	1			42
		Paper feed roller (bypass tray)	4014-3026-xx	1		200,000	46
		Feed roller (bypass tray)	4014-3027-xx	1			47
		Double feed prevention roller (bypass tray)	4014-3030-xx	1			47
		Fixing upper roller (upper)	4027-1353-xx	1	1,000,000		
		Fixing lower roller assembly (lower)	4027-1351-xx	1			
		Fixing claw (upper)	4014-3017-xx	6			
		Fixing claw (lower)	4014-3002-xx	2			
		Insulating sleeve (upper)	4014-3007-xx	2			
		Upper roller bearing	4014-1747-xx	2			
		Fixing cleaning sheet assembly	4027-1356-xx	1			
		Drum fixing spring	4014-1798-xx	1			
		Spring position adjusting collar	4014-1662-xx	1			
		Drum *1	—	1			
		Developer *1	—	1			

*1 Europe/USA only. In other areas, 500,000 copies are periods.

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
3	Periodic check (II) (Every 3,000,000 copies)	Drum temperature sensor	4027-1300-xx	1	3,000,000		
		Transfer/separation corona unit	4027-1315-xx	1			
		Registration roller	4014-2038-xx	1			
		Registration bearing	4014-2172-xx	2			
		Registration loop roller	4014-3167-xx	1			
		Registration clutch	4014-2290-xx	1			
		Paper reverse/exit roller 1	4027-1286-xx	1			
		Insulating sleeve (heating roller)	4014-3005-xx	2			
		Heating roller bearing	4014-3006-xx	2			
		Temperature sensor (upper roller fault)	4014-2300-xx	1			
		Temperature sensor (heating roller fault)	4014-2302-xx	1			
		Fixing heating roller	4014-3016-xx	1			
		Exit actuator	4014-2125-xx	1			
		Heater lamp L2	4014-3035-xx	2			
		Heater lamp L3	4014-3036-xx	1			
		Heater lamp L4	4027-1551-xx	1			
		Ozone filter 1	4014-1795-xx	2			
		Ozone filter 2	4014-1843-xx	1			
		Toner supply sleeve 1	4014-3207-xx	1			
		Toner supply sleeve 2	4014-3208-xx	1			
4	Periodic check (III) (Every 4,500,000 copies)	Feed clutch (Tray1)	4024-1028-xx	1		3,000,000	33
		1st paper feed clutch (Tray1)	4024-1028-xx	1			34
		Feed clutch (Tray2)	4024-1028-xx	1			38
		1st paper feed clutch (Tray2)	4024-1028-xx	1			39
		Feed clutch (Tray3)	4024-1028-xx	1			43
		1st paper feed clutch (Tray3)	4024-1028-xx	1			44

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
5	Periodic check (IV) (Every 6,000,000 copies)	Charging corona unit	4014-3022-xx	1	6,000,000		
		PCL	4014-3201-xx	1			
		Developing unit	4027-1321-xx	1			
		TSL	4014-2292-xx	1			
		Vertical conveyance clutch	4024-1028-xx	2		4,500,000	57
		Vertical conveyance roller (upper)	4014-2023-xx	1			54
		Fixing drive gear 2	4014-2237-xx	1	6,000,000		
		Fixing web drive motor	4027-1379-xx	1			
		Pre-registration roller	4014-2051-xx	1			
		ADU pre-registration bearing	4014-2174-xx	2			
		Pre-registration loop roller	4014-2050-xx	1			
		ADU exit roller	4014-2050-xx	1			
		Reversal entrance section roller	4014-2070-xx	1			
		Reverse paper exit roller 2	4027-1343-xx	1			
		Reverse paper exit roller 3	4027-1341-xx	1			
		ADU reverse roller	4027-1287-xx	1			
		ADU horizontal conveyance roller 1	4014-2050-xx	1			
		ADU horizontal conveyance roller 1	4014-2050-xx	1			
		ADU pre-registration clutch	4014-2290-xx	1			
6	Periodic check (V) (Every 10,000,000 copies)	Vertical conveyance roller (middle, lower)	4027-1334-xx	2	10,000,000		
		Sensor actuator	4027-1345-xx	3			
		Guide part/Front	4014-2056-xx	1			
		Guide part/Rear	4014-2057-xx	1			
		Guide part	4014-2066-xx	4			
		Pre-registration roller (500-sheet tray, 1000-sheet tray)	4014-1948-xx	3			

2. EDH-5

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 1,000,000 copies)	Paper feed roller	4014-1446-xx	1		200,000	66
		Separation roller	4014-1447-xx	1			67
		Double feed prevention roller	4014-1448-xx	1			68
		Separation assist roller	4014-1443-xx	1			69
2	Periodic check (II) (Every 2,500,000 copies)	Torque limiter	4014-3136-xx	1		500,000	70

3. FN-7/115

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Maintenance (Every 500,000 copies)	Conveyance cleaning brush	4376-1110-xx	2	500,000		
		Paper exit roller A	4014-1055-xx	10	500,000		
		Staple cartridge for 100 sheets (FN-115)	—	2		5,000/each	Front 59 Rear 60
		Staple cartridge (FN-7)	—	2		5,000/each	Front 59 Rear 60
2	Periodic check (I) (Every 1,000,000 copies)	Stapler unit (front) FN-115	4376-1065-xx	1		200,000	59
		Stapler unit (front) FN-7	4377-1034-xx	1		200,000	59
		Stapler unit (rear) FN-115	4376-1065-xx	1		200,000	60
		Stapler unit (rear) FN-7	4377-1034-xx	1		200,000	60
3	Periodic check (II) (Every 6,000,000 copies)	Paper feed motor	4014-3105-xx	1		2,500,000	58

4. C-403/404

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 1,000,000 copies)	Feed roller	4014-3028-xx	1		500,000	49
		Paper feed conveyance roller	4014-3029-xx	1		500,000	50
		Double feed prevention roller	4014-3028-xx	1		500,000	50
2	Periodic check (II) (Every 4,000,000 copies)	Feed clutch	4024-1028-xx	1		3,000,000	51
		Conveyance clutch	4024-1028-xx	1		3,000,000	52

5. Cover Inserter C

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 500,000 copies)	Feed roller assembly/B	4014-3153-xx	1		100,000	65
		Double feed prevention roller assembly	4594-3121-xx	1		100,000	65
2	Periodic check (II) (Every 1,000,000 copies)	Feed roller assembly/A	4014-3152-xx	3		200,000	65

6. TMG-2

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 1,000,000 copies)	Upper knife	4014-3051-xx	1		500,000	86
		Lower knife	4594-3052-xx	1		500,000	86

7. PK-3

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 3,000,000 copies)	Punch clutch	4014-2595-xx	1		1,000,000	87, 88, 89
		Punch scraps conveyance motor	4594-2617-xx	1		1,000,000	87, 88, 89

8. ZK-2

No	Classification	Parts name	Parts No.	Qty	Total count	Actual count	Parts count No.
1	Periodic check (I) (Every 3,000,000 copies)	Punch clutch	4014-2595-xx	1		1,000,000	87, 88, 89
		Punch scraps conveyance motor	4594-2617-xx	1		1,000,000	87, 88, 89


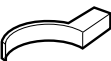

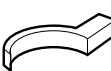
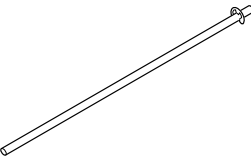
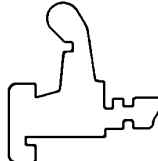

COPY MATERIALS

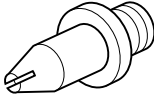
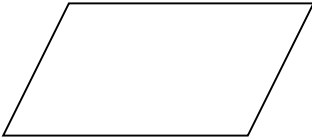
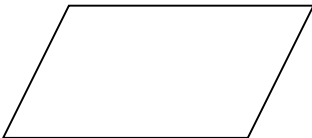
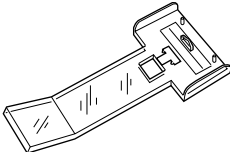
[1] Single unit supply

Name	Durability/copies
Toner cartridge	60,000
Developer	1,000,000 *1
Drum	1,000,000 *1

*1 Europe/USA only. In other areas, 500,000 copies are periods.

SERVICE MATERIAL LIST

Tool No.	Tool Name	Appearance	Quantity	Remarks
4014-5001-01	Temp. sensor PS jig/A (for upper fixing roller)		1	
4014-5002-01	Temp. sensor PS jig/B (for heating roller)		1	
4014-5003-01	Thermostat PS jig/A (for upper fixing roller)		1	
4014-5004-01	Temp. sensor PS jig/B (for heating roller)		1	
4014-5005-01	Optics PS jig		2	
4014-5006-01	Door switch jig		2set	2PCS/set
4014-5007-01	Setting powder	 25 g		

Tool No.	Tool Name	Appearance	Quantity	Remarks
4014-5008-01*	PS shaft		2pc/set	For EDH positioning
4014-5010-01*	ADJ chart		1	For EDH adjustment
4014-5011-01*	White chart		1	For EDH adjustment
4014-5009-01	Stapler PS jig		1	For FN-7 adjustment

4

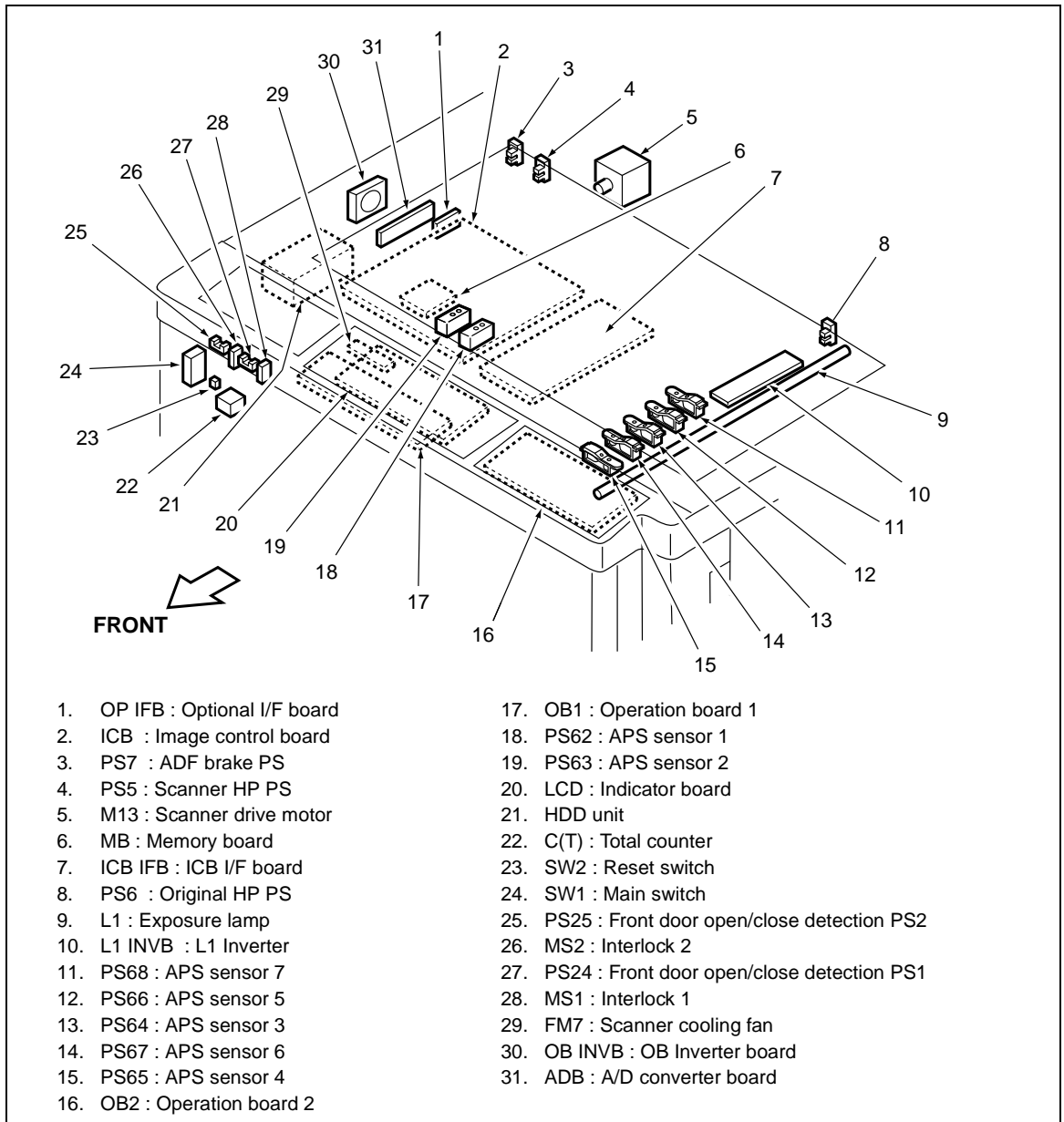
ELECTRIC PARTS LIST

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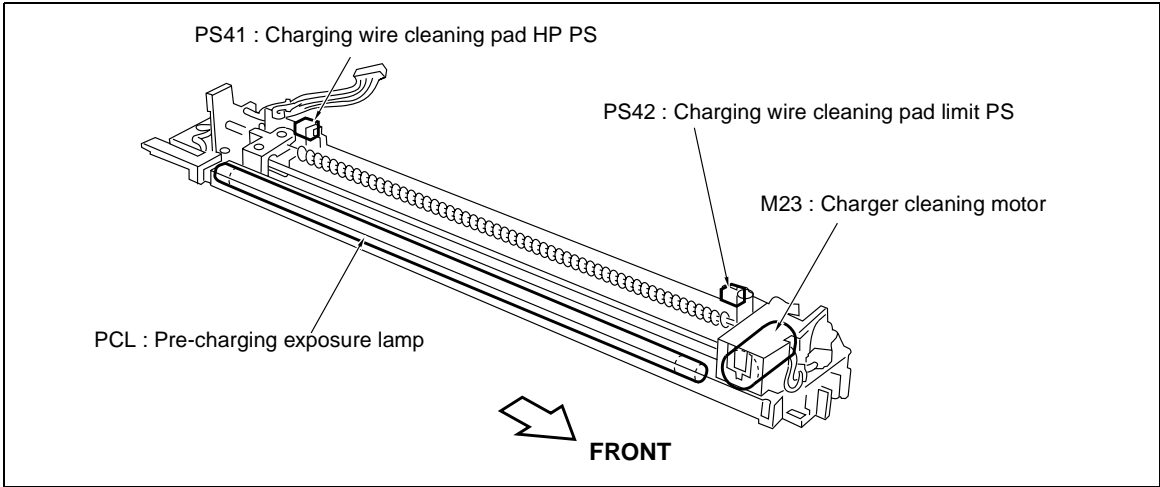
PARTS LAYOUT DRAWING

[1] Di850 Parts Layout Drawing

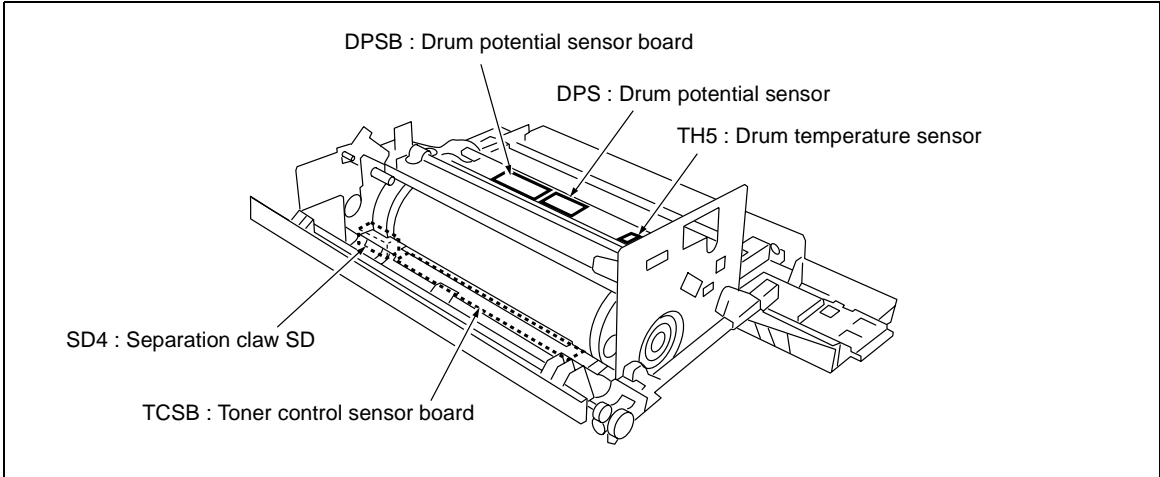
1. Read Section/Operational Section



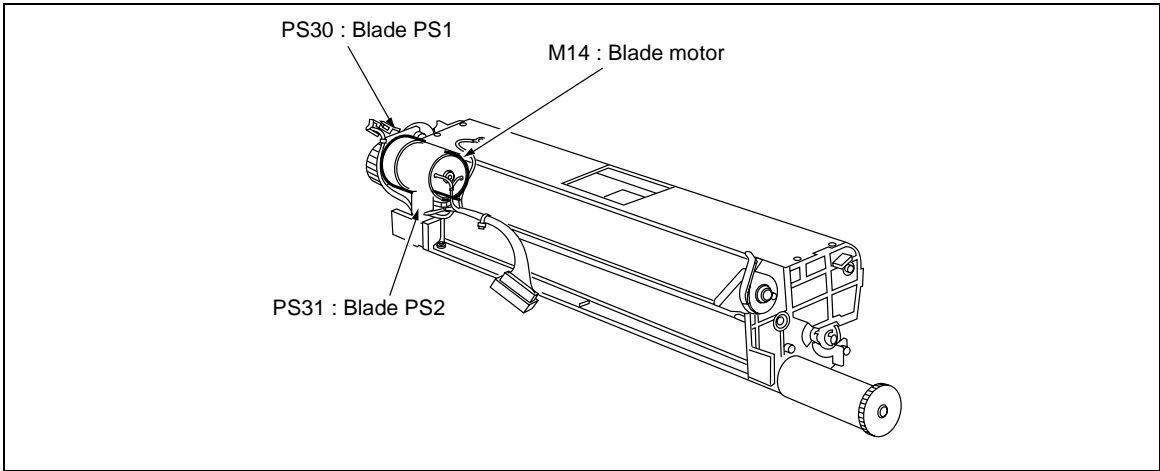
2. Charging Corona Wire Unit



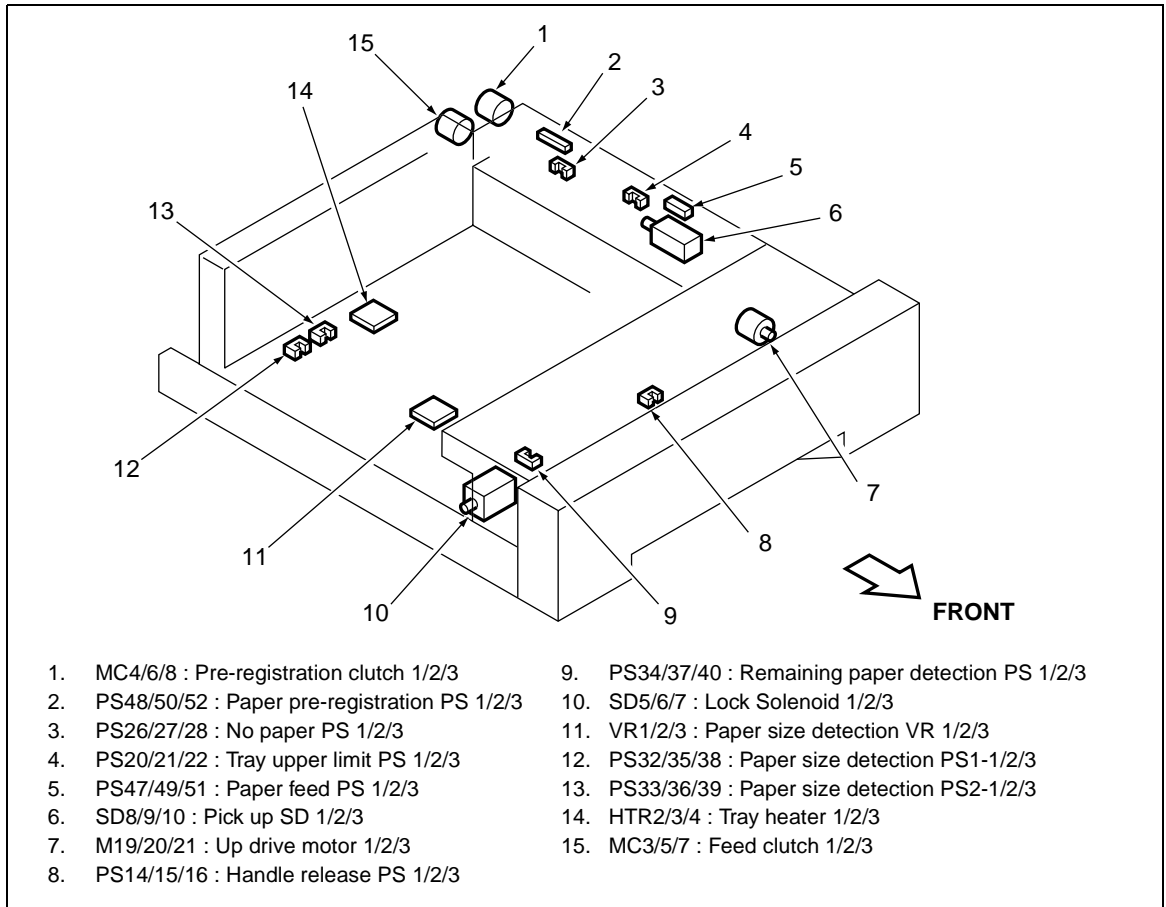
3. Drum Unit



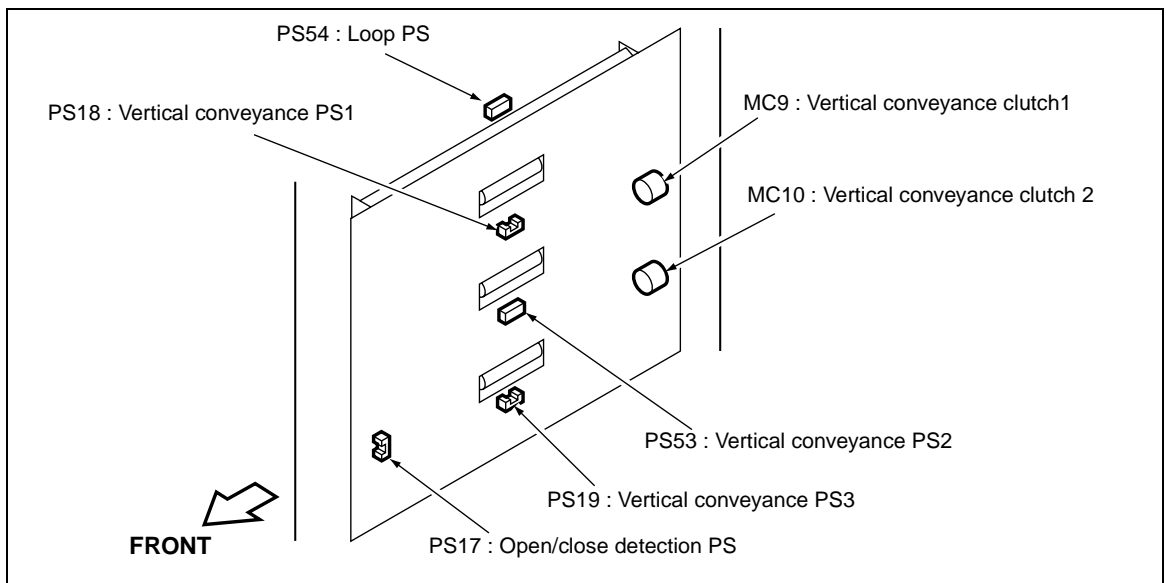
4. Cleaning Unit



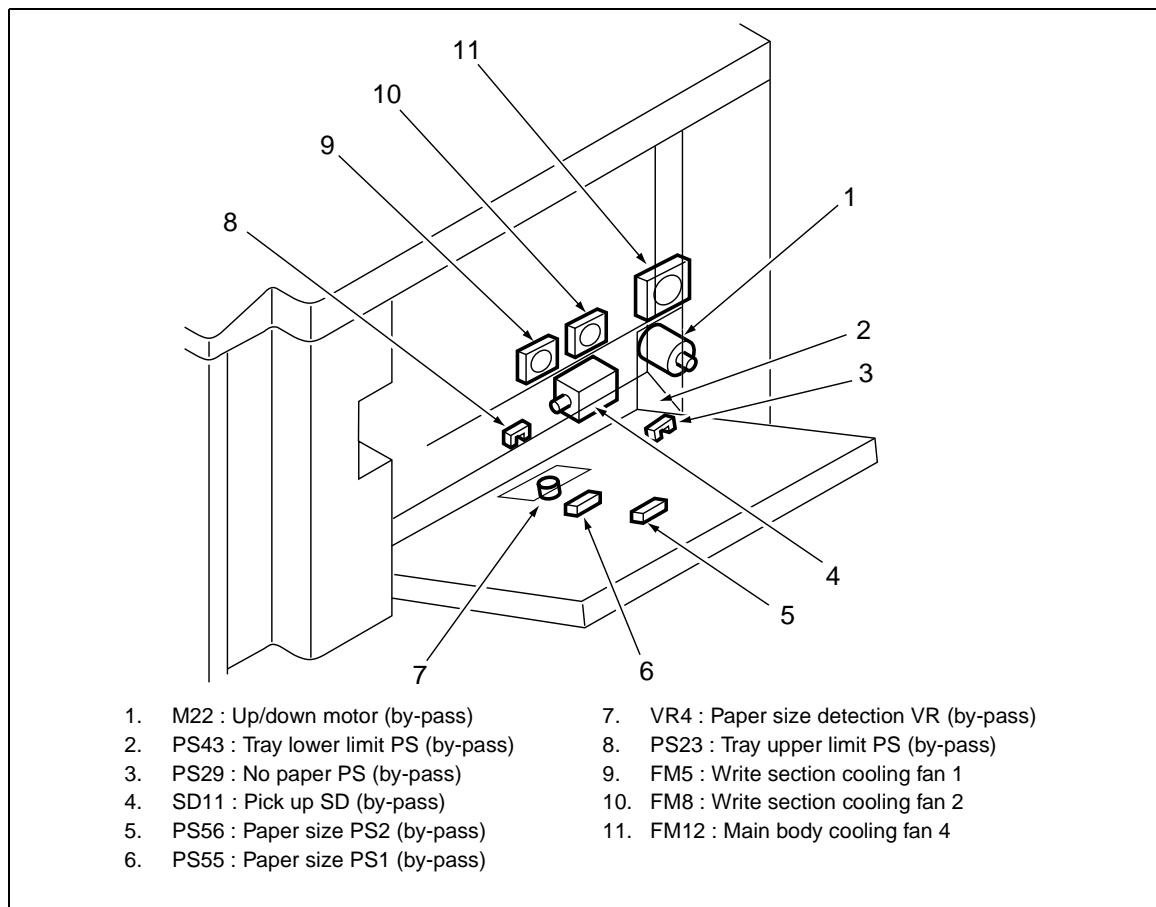
5. Tray 1, 2, 3



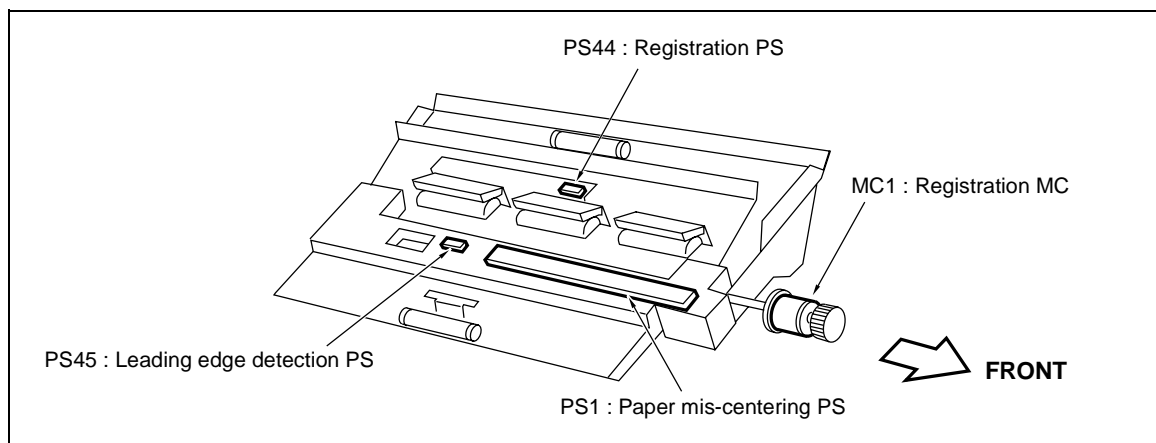
6. Vertical Conveyance Section



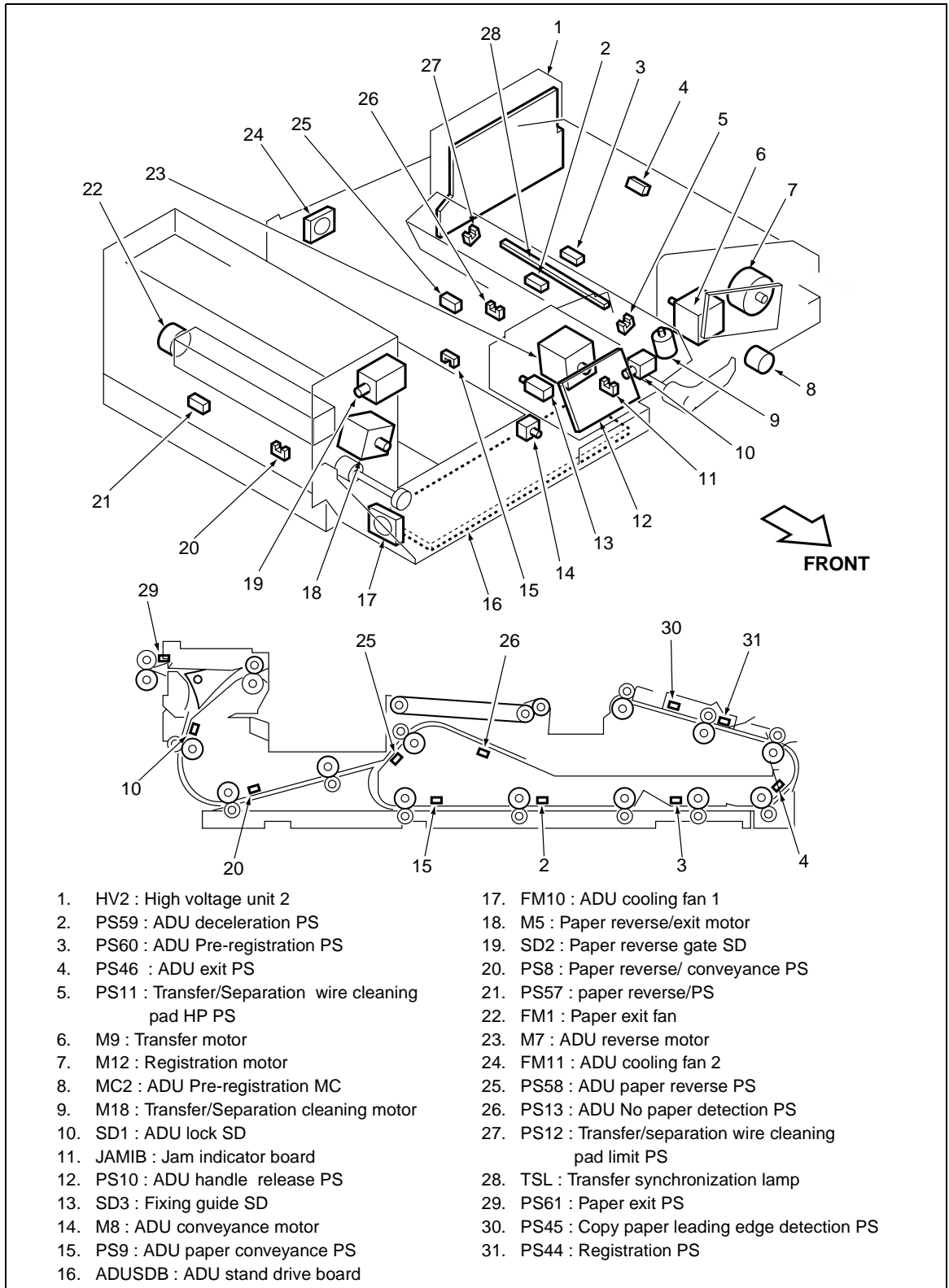
7. By-pass Feed Section



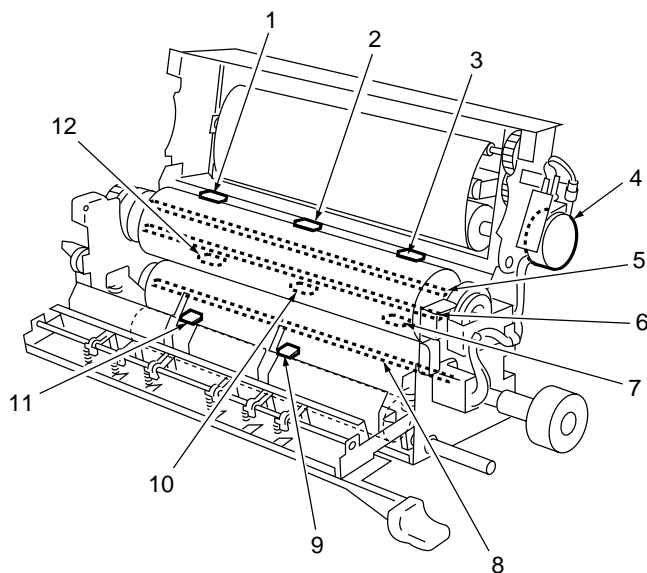
8. Second Paper Feed Section



9. ADU Unit

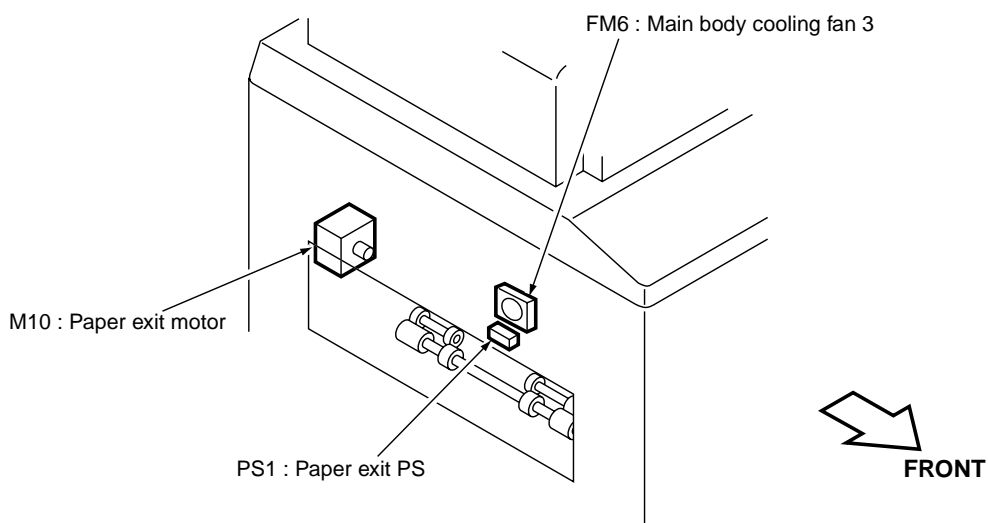


10. Fixing Unit

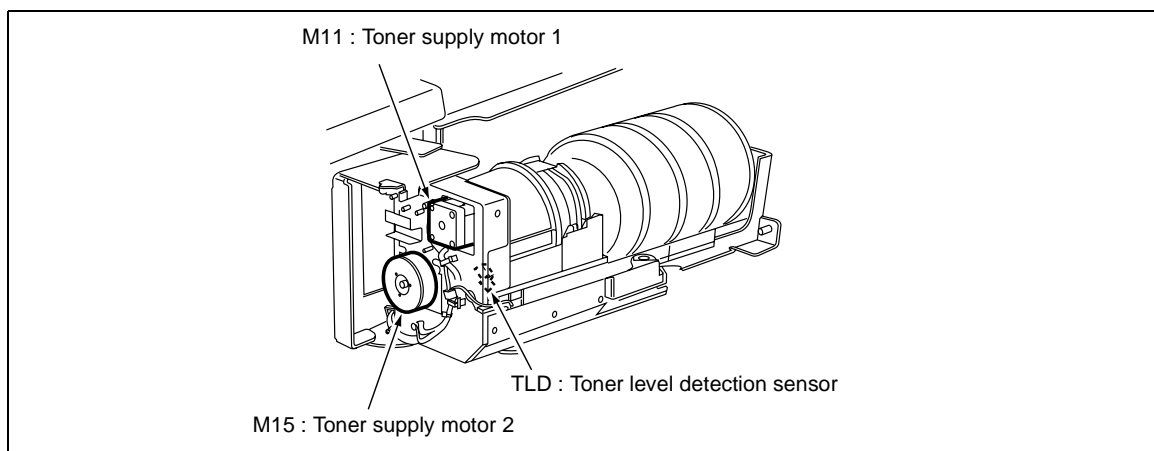


- | | |
|--------------------------------------|---------------------------------------|
| 1. TH2 : Fixing temperature sensor 2 | 7. L4 : Fixing heater lamp 3 |
| 2. TH1 : Fixing temperature sensor 1 | 8. TS2 : Thermostat 2 (lower) |
| 3. TS1 : Thermostat (upper) | 9. PS2 : Fixing exit PS |
| 4. M16 : Web drive motor | 10. TH3 : Fixing temperature sensor 3 |
| 5. L2 : Fixing heater lamp 1 | 11. PS3 : Fixing jam PS |
| 6. L3 : Fixing heater lamp 2 | 12. TH4 : Fixing temperature sensor 4 |

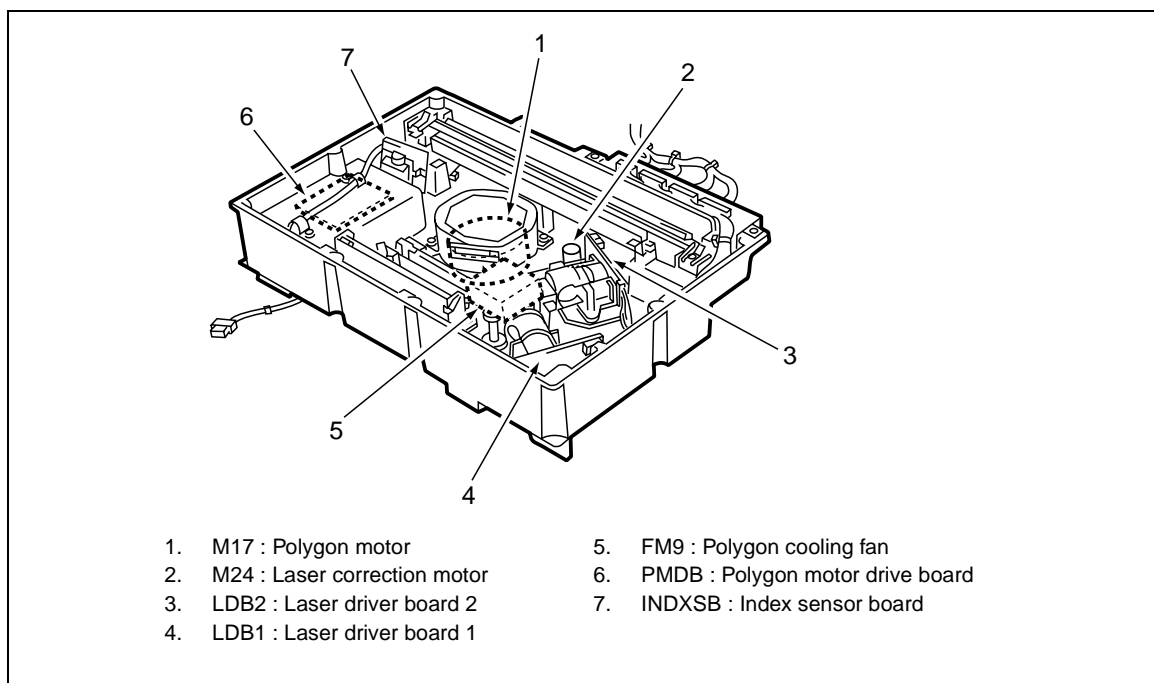
11. Paper Exit Section



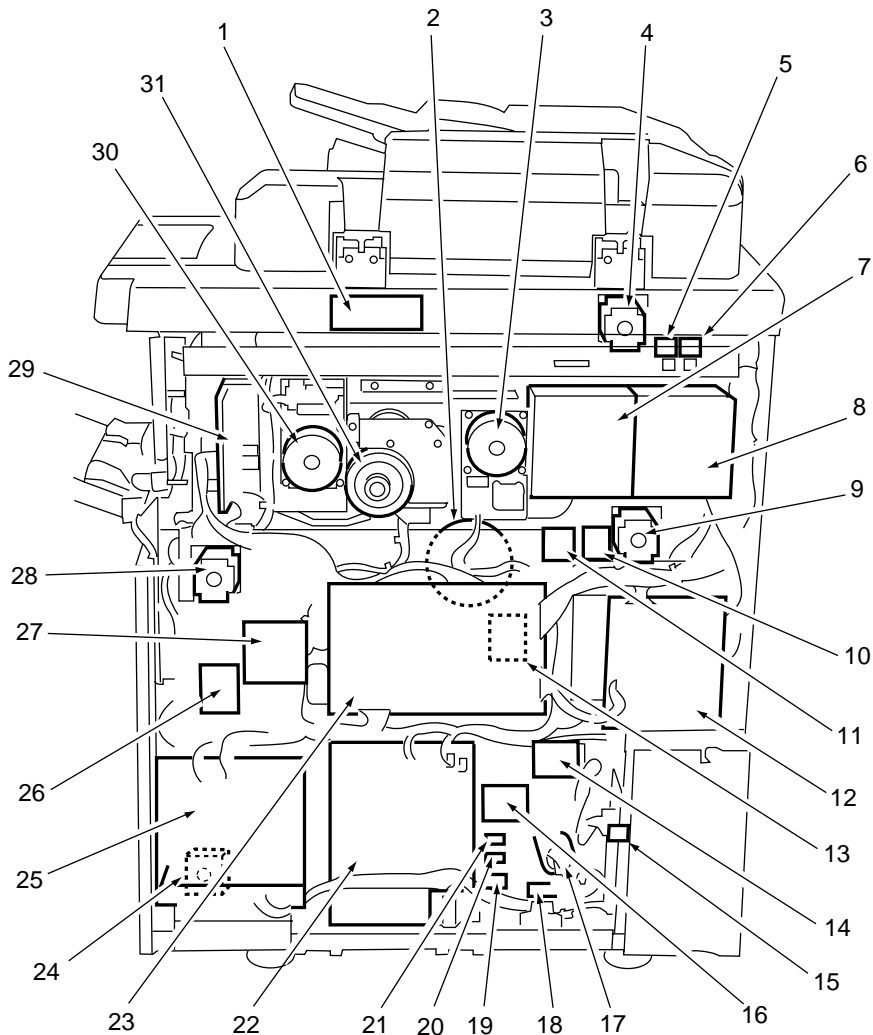
12. Toner Supply Unit



13. Write Section

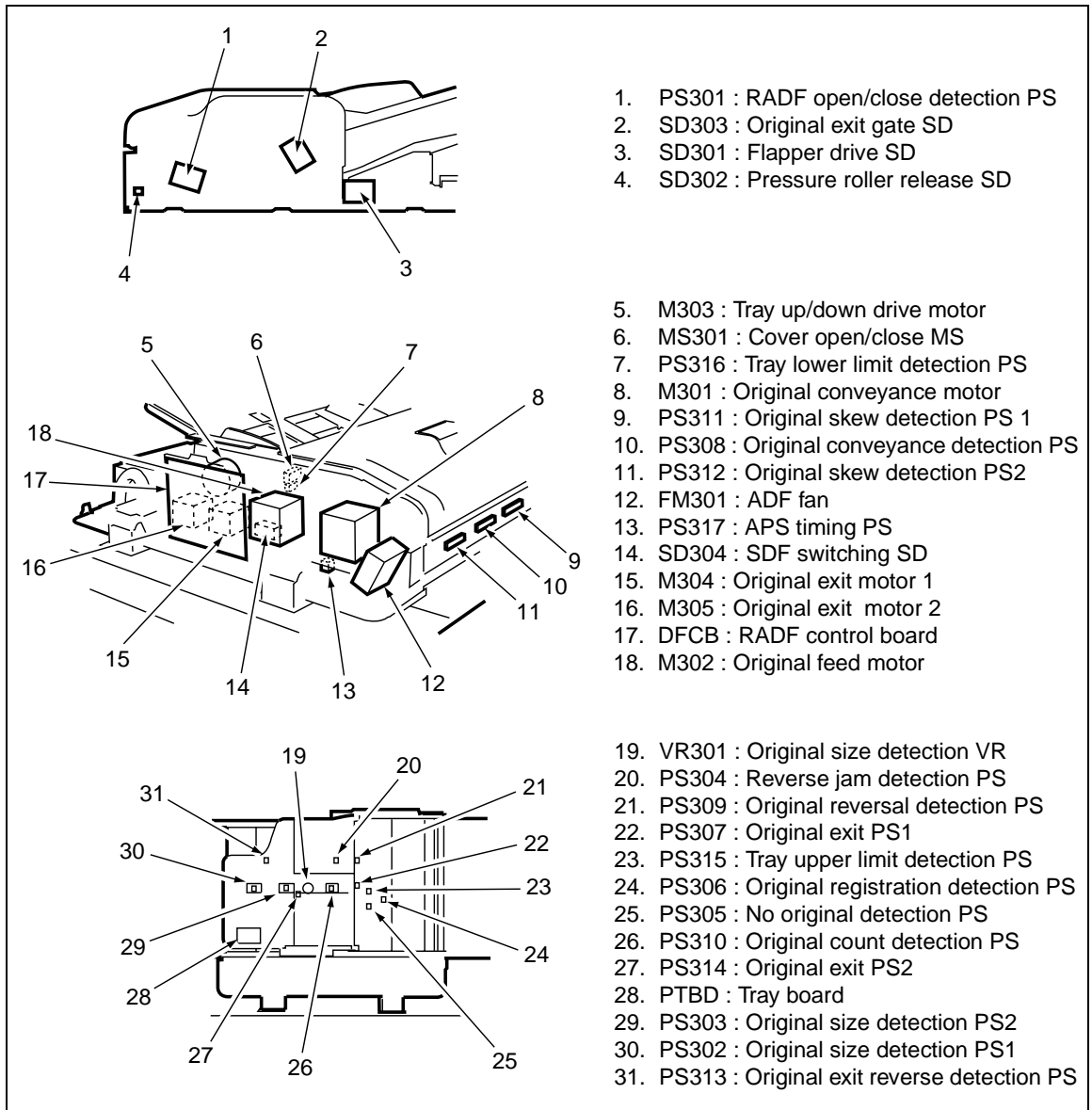


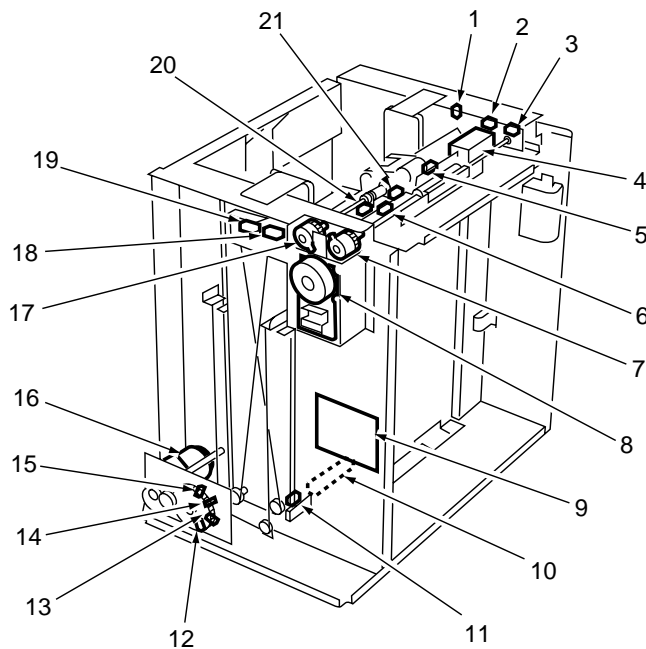
14. Rear Side of the Main Body



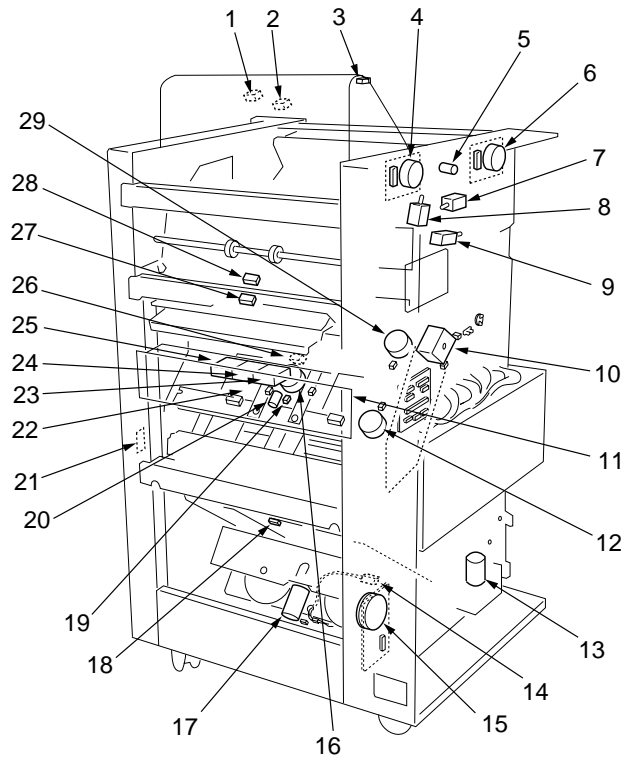
- | | |
|--|--|
| 1. SCDB : Scanner drive board | 17. NF : Noise filter |
| 2. FM2 : Developing section fan | 18. CBR1 : Circuit breaker 1 |
| 3. M1 : Main motor | 19. RL1 : Main relay |
| 4. M13 : Scanner drive motor | 20. RL2 : AC input relay for DCPS2 |
| 5. PRB : Printer relay board | 21. RL3 : AC input relay for IP |
| 6. LAN IFB : LAN I/F board | 22. DCPS2 : DC power supply unit 2 |
| 7. FM4 : Main unit cooling fan 2 | 23. PRCB : Printer control board |
| 8. FM3 : Main unit cooling fan 1 | 24. M4 : Paper feed motor |
| 9. M10 : Paper exit motor | 25. DCPS1 : DC power supply unit 1 |
| 10. TRC1 : Triac 1 | 26. DCPS3 : DC power supply unit 3 |
| 11. TRC2 : Triac 2 | 27. PSMB : Power supply management board |
| 12. ACDB : AC drive boardTransformer 2 | 28. M6 : Loop roller motor |
| 13. NF : Noise filter 2 | 29. HV1 : High voltage unit 1 |
| 14. Transformer 2 | 30. M3 : Developing motor |
| 15. SW3 : Tray heater switch | 31. M2 : Drum motor |
| 16. Transformer 1 | |

[2] EDH-5 Parts Layout Drawing

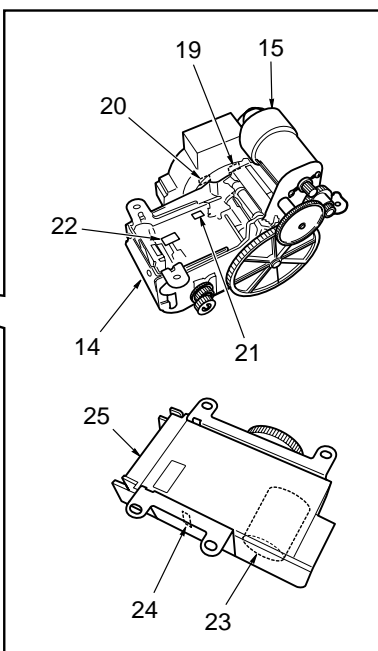
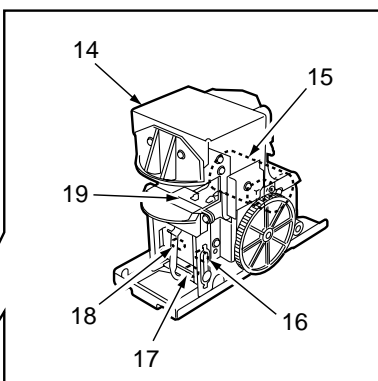
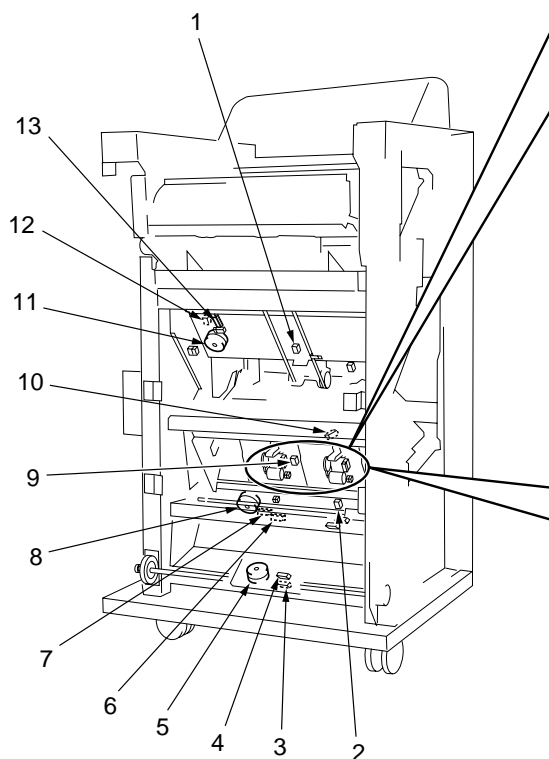


[3] C-403/C-404 Parts Layout Drawing

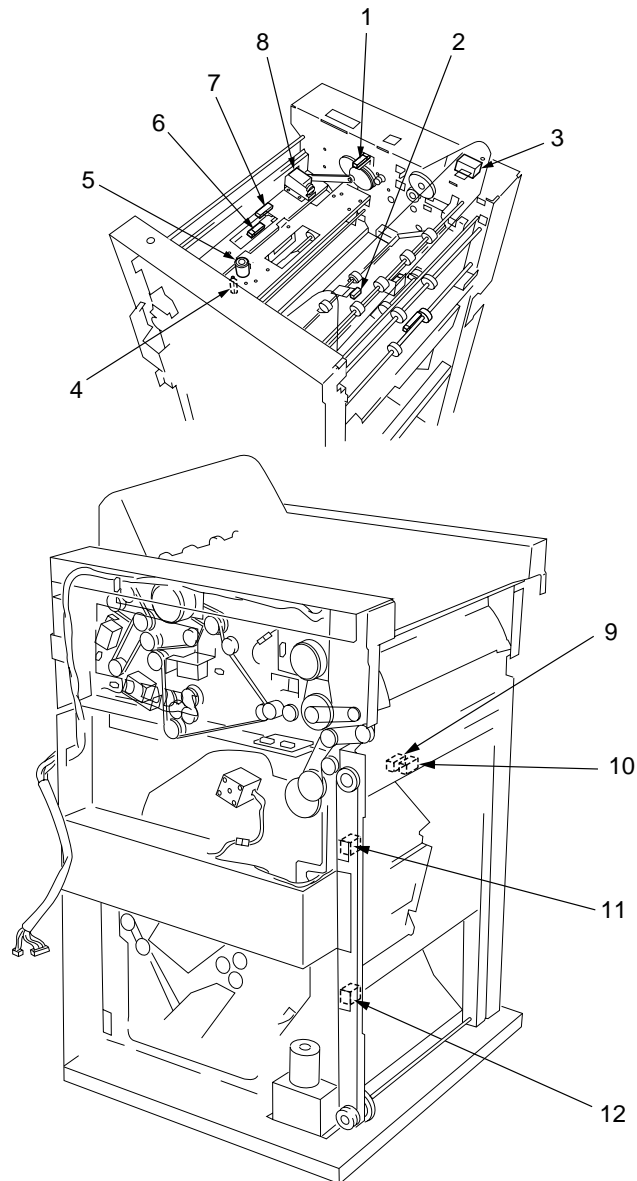
- | | |
|---|--|
| 1. SW100 : LT tray down drive switch | 11. PS101 : LT lower limit detection PS |
| 2. MS101 : LT interlock MS1 | 12. PS105 : LT remaining paper detection PS4 |
| 3. PS110 : LT jam access door open/close detection PS | 13. PS104 : LT remaining paper detection PS3 |
| 4. SD100 : LT 1st paper feed SD | 14. PS103 : LT remaining paper detection PS2 |
| 5. PS109 : LT upper limit detection PS | 15. PS102 : LT remaining paper detection PS1 |
| 6. PS106 : LT feed PS | 16. M100 : LT up/down motor |
| 7. MC102 : LT 1st paper feed MC | 17. MC101 :LT feed drive MC |
| 8. M101 : LT paper feed motor | 18. PS100 : LT top cover open/close detection PS |
| 9. LTDB : LT drive board | 19. MS102 : LT interlock MS2 |
| 10. HTR101 : LT internal heater | 20. PS107 : LT pre-registration PS |
| | 21. PS108 : LT No paper detection PS |

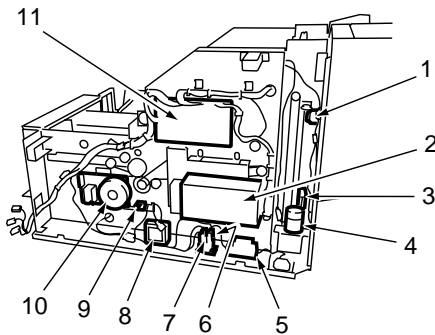
[4] FN-7/FN-115 Parts Layout Drawing

- | | |
|---|---|
| 1. PS1 : Sub-tray paper exit PS | 16. M14 : Stapling and folding stopper motor (FN-7 only) |
| 2. PS50 : Sub-tray full PS | 17. M19 : Folding-knife motor (FN-7 only) |
| 3. PS207 : Paper exit-cover open/close detection PS | 18. PS26 : Folding passage PS/2 (FN-7 only) |
| 4. M1 : FNS conveyance motor | 19. PS21 : Stapling and folding stopper-release-motor HP PS (FN-7 only) |
| 5. M8 : Paper exit-opening motor | 20. M17 : Stapling and folding stopper release motor (FN-7 only) |
| 6. M7 : Paper exit-roller motor | 21. MS1 : Interlock |
| 7. SD1 : Gate solenoid | 22. PS33 : Clincher HP PS/F (FN-7 only) |
| 8. SD2 : Sub-tray paper exit solenoid | 23. FM3 : Cooling FAN 3 |
| 9. SD5 : By-pass solenoid | 24. FM2 : Cooling FAN 2 |
| 10. M13 : Stacker entrance motor | 25. FM1 : Cooling FAN 1 |
| 11. PS30 : Clincher HP PS/R (FN-7 only) | 26. PS23 : Stapling and folding stopper HP PS (FN-7 only) |
| 12. M4 : Stapler rotation motor | 27. PS13 : Entrance paper detection PS |
| 13. M3 : Tray up-down motor | 28. PS4 : FIN entrance passage PS |
| 14. PS22 : Folding-knife HP PS (FN-7 only) | 29. M11 : Stapler-movement motor |
| 15. M20 : Folding conveyance motor (FN-7 only) | |

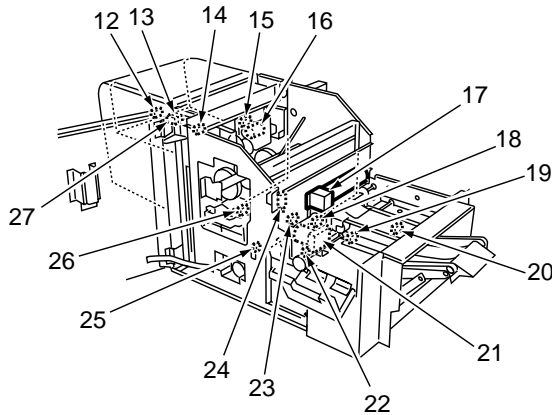


- | | |
|---|------------------------------------|
| 1. PS20 : Stacker no-paper detection PS | 17. PS38 : Stapler ready PS/F |
| 2. PS24 : Alignment-plate/lower HP PS (FN-7 only) | PS41 : Stapler ready PS/R |
| 3. PS28 : Folding passage PS/1 (FN-7 only) | 18. PS37 : Staple detection PS/F |
| 4. PS27 : Folding stopper HP PS (FN-7 only) | PS40 : Staple detection PS/R |
| 5. M18 : Folding stopper motor (FN-7 only) | 19. PS31 : Stapler HP PS/R |
| 6. PS29 : Folding full up PS (FN-7 only) | PS34 : Stapler HP PS/F |
| 7. PS25 : Folding paper exit PS (FN-7 only) | 20. PS32 : Clincher timing PS/R |
| 8. M15 : Alignment-plate/lower motor (FN-7 only) | PS35 : Clincher timing PS/F |
| 9. PS14 : Stapler rotation HP PS | 21. SW1 : Cartridge detection SW/R |
| 10. PS11 : Stapler movement HP PS | SW3 : Cartridge detection SW/F |
| 11. M5 : Alignment-plate/ upper motor | 22. SW2 : Staple detection SW/R |
| 12. PS9 : Paper exit belt HP PS | SW4 : Staple detection SW/F |
| 13. PS8 : Alignment-plate/upper HP PS | 23. M21 : Clincher motor/R |
| 14. Stapler (F, R) | M23 : Clincher motor/F |
| 15. M22 : Stapler motor/R | 24. PS30 : Clincher HP PS/R |
| M24 : Stapler motor/F | PS33 : Clincher HP PS/F |
| 16. PS36 : Cartridge detection PS/F | 25. Clincher (F, R) |
| PS39 : Cartridge detection PS/R | |

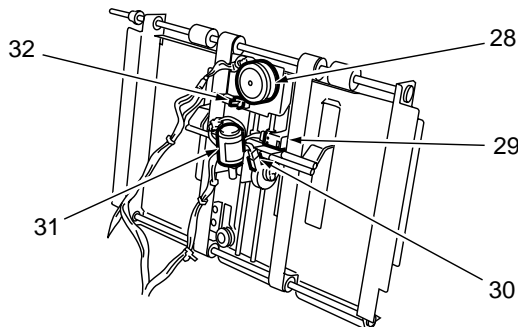


[5] TMG-2 Parts Layout Drawing

1. PS110 : Upper limit PS
2. DCPS : DC power supply unit
3. PS111 : Lower limit PS
4. M106 : Holder motor
5. CBR : Circuit breaker
6. RL1 : Relay 1
7. RL2 : Relay 2
8. Coil
9. PS107 : Scraps box detection PS
10. M101 : Conveyance motor
11. TUDB : TU drive board

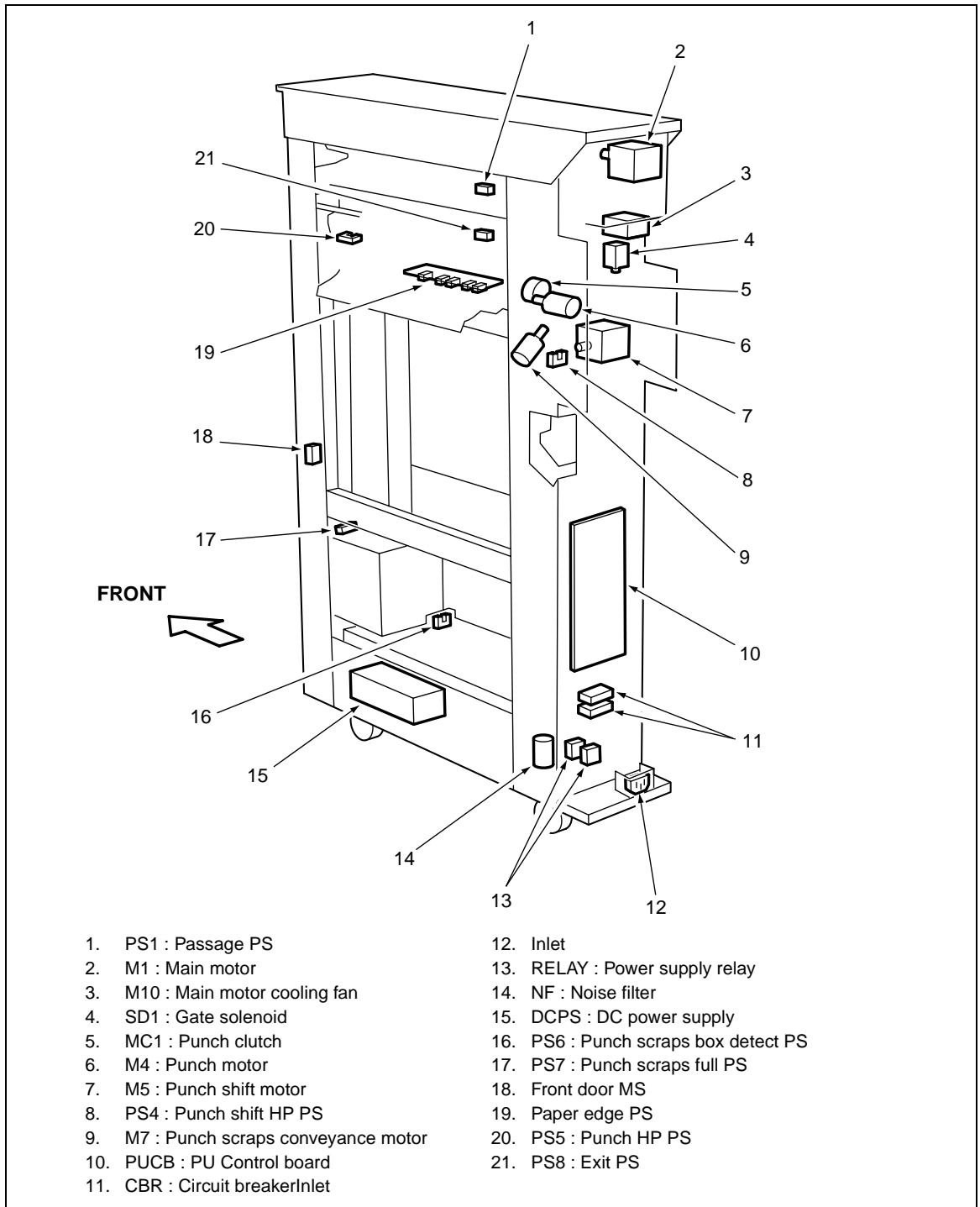


12. PS114 : Stacker door PS
13. MS4 : Stacker MS4
14. PS113 : Stacker full PS
15. PS112 : Pusher PS
16. M107 : Pusher motor
17. M108 : Scraps removal motor
18. LED101 : Scraps full LED
19. PS109 : Scraps full PS
20. PS101 : Entrance PS
21. M102 : Trimmer motor
22. PS106 : Trimmer HP PS
23. PS105 : Press HP PS
24. M105 : Press motor
25. MS2 : Front door MS
26. PS108 : Exit PS
27. MS3 : Stacker MS3

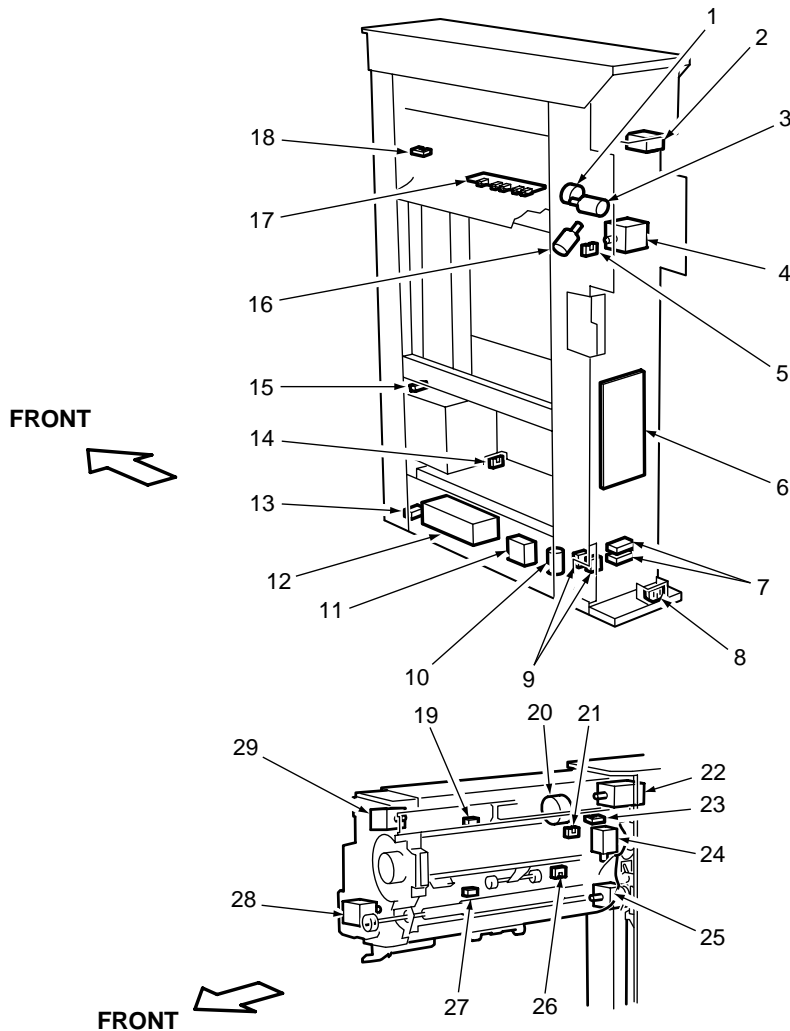


28. M103 : Stopper motor
29. PS102 : Conveyance PS
30. PS104 : Stopper release HP PS
31. M104 : Stopper release motor
32. PS103 : Stopper HP PS

[6] PK-3 Parts Layout Drawing

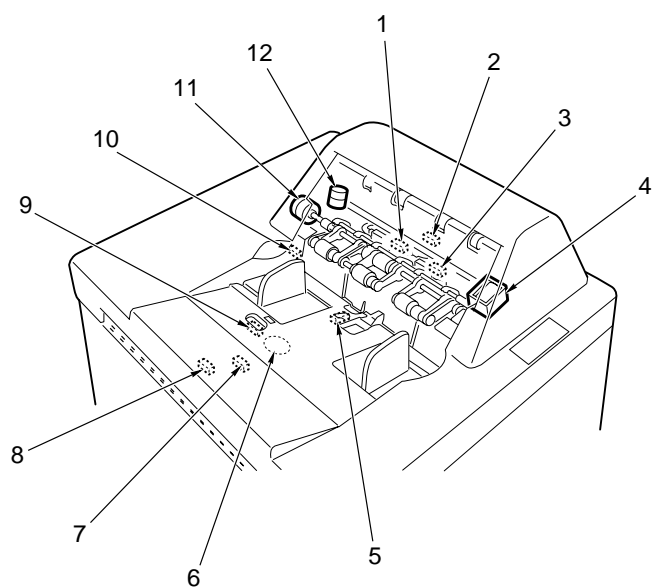


[7] ZK-2 Parts Layout Drawing



- | | |
|---------------------------------------|--|
| 1. MC1 : Punch clutch | 16. M7 : Punch scraps conveyance motor |
| 2. M10 : Conveyance motor cooling fan | 17. Paper edge PS |
| 3. M4 : Punch motor | 18. PS5 : Punch HP PS |
| 4. M5 : Punch shift motor | 19. PS1 : Passage PS |
| 5. PS4 : Puncher HP PS | 20. M2 : 1st stopper motor |
| 6. PZCB : PZ Control board | 21. PS3 : 1st stopper HP PS |
| 7. CBR : Circuit breaker | 22. M6 : Conveyance motor |
| 8. Inlet | 23. PS9 : Conveyance encoder PS |
| 9. RELAY : Power source relay | 24. SD1 : Gate SD/L |
| 10. NF : Noise filter | 25. M1 : Registration motor |
| 11. COIL : Coil | 26. PS2 : 2nd stopper HP PS |
| 12. DCPS : DC power unit | 27. PS8 : Exit PS |
| 13. MS1 : Front door MS | 28. M3 : 2nd stopper motor |
| 14. PS6 : Punch scraps box PS | 29. SD2 : Gate SD/U |
| 15. PS7 : Punch scraps full PS | |

[8] Cover Inserter C Parts Layout Drawing

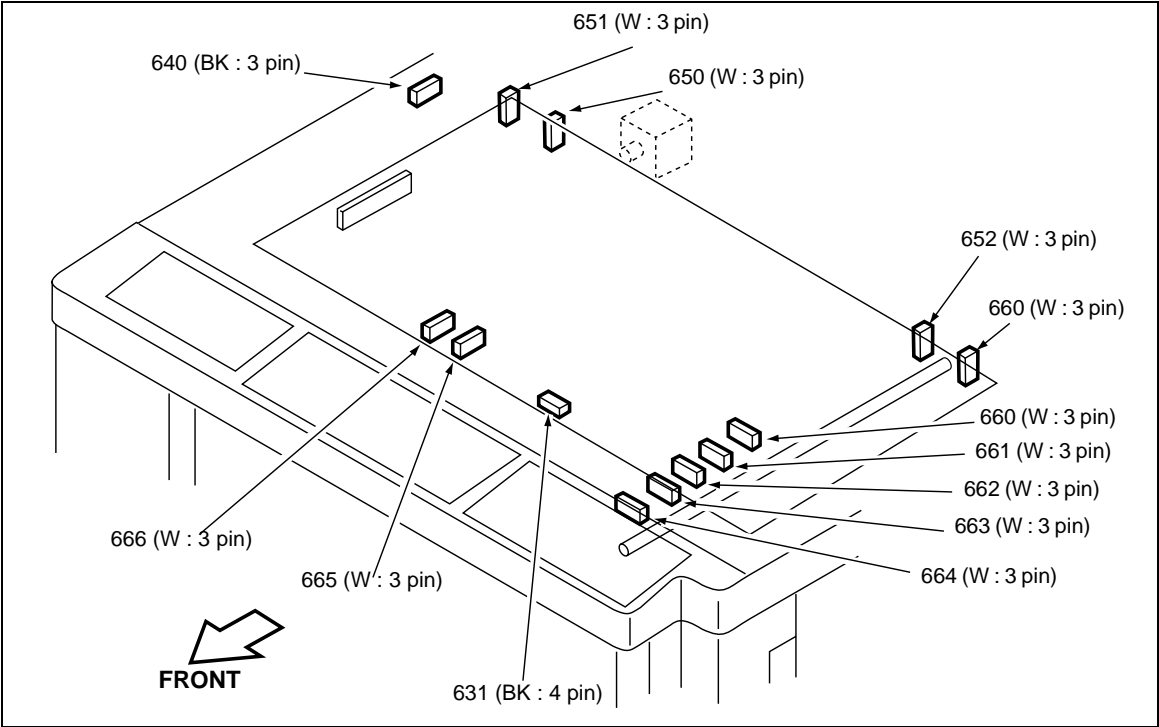


- | | |
|--------------------------------------|---------------------------------------|
| 1. PS202 : No-sheet PS | 7. PS205 : Sheet-size PS (small) |
| 2. PS201 : Sheet passage PS | 8. PS206 : Sheet-size PS (large) |
| 3. PS204 : Sheet-tray upper-limit PS | 9. PS209 : Pre no-paper PS |
| 4. SD201 : Paper-feed solenoid | 10. PS203 : Sheet-tray lower-limit PS |
| 5. PS208 : Sheet set PS | 11. MC201 : Paper-feed clutch |
| 6. VR1 : Sheet-width VR | 12. M201 : Sheet-tray motor |

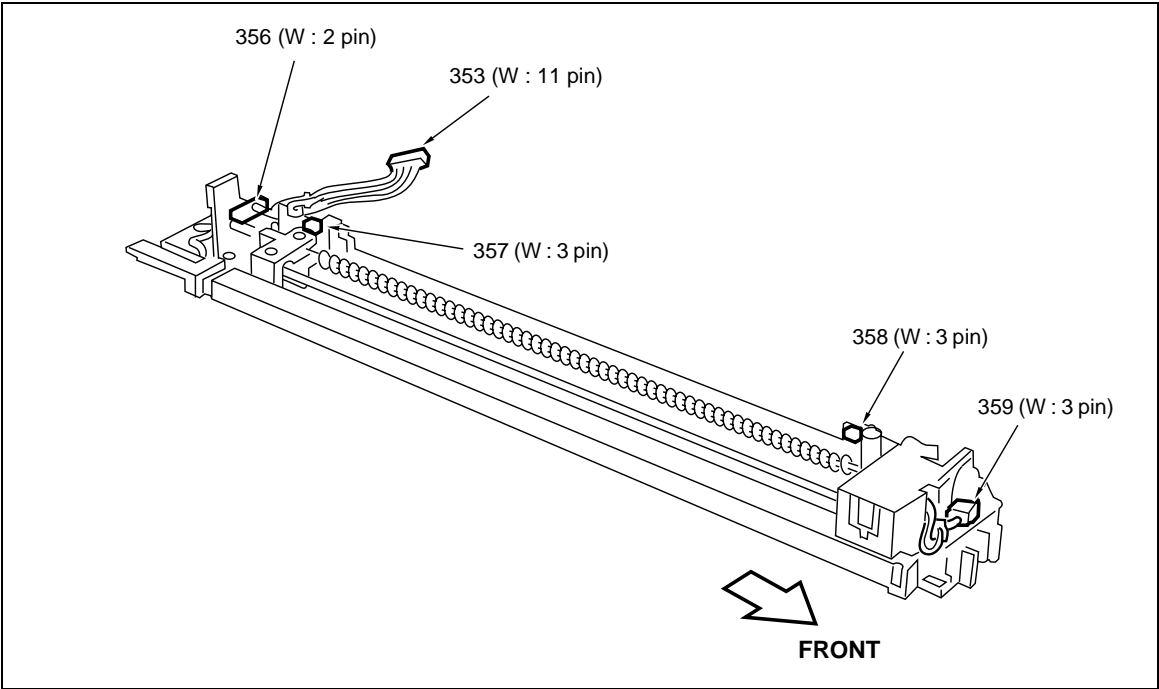
CONNECTOR LAYOUT DRAWING

[1] Di850 Connector Layout Drawing

1. Read Section

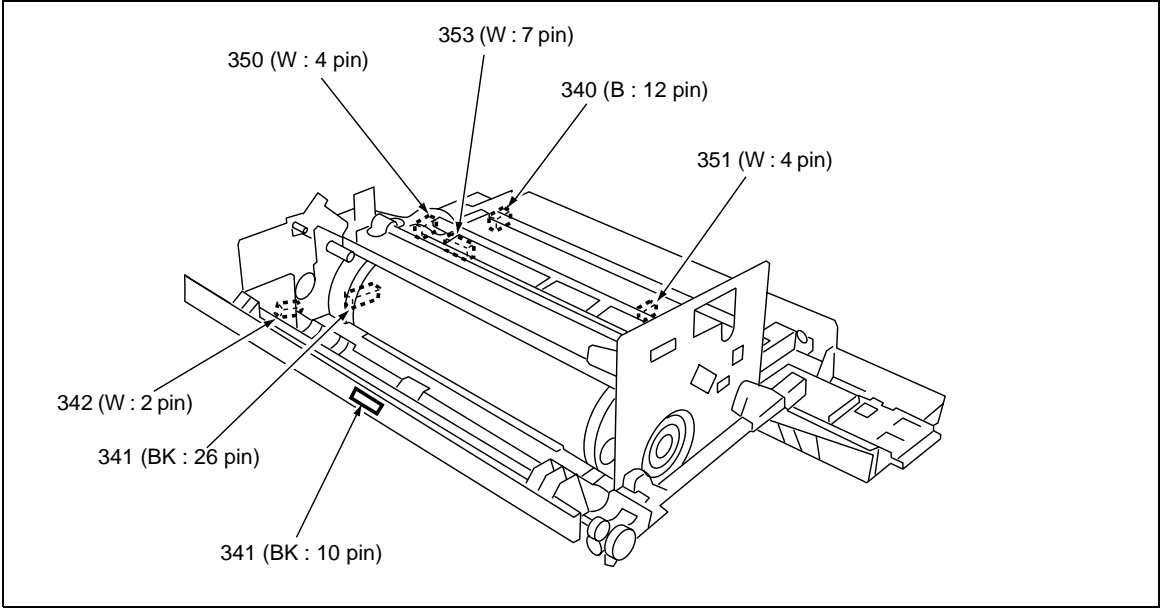


2. Charging Corona Wire Unit

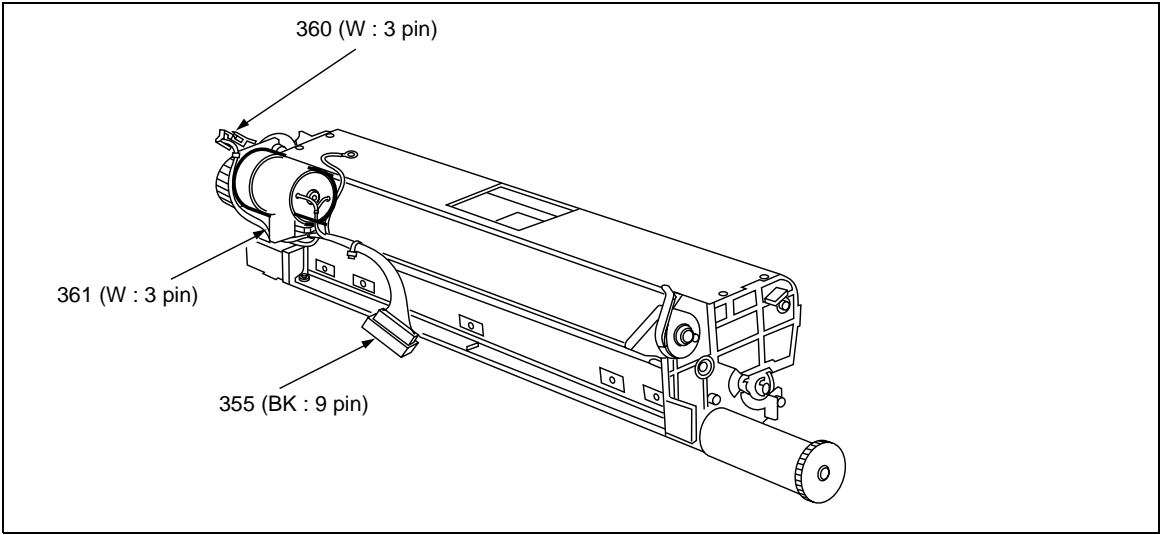


4 ELECTRIC PARTS LIST

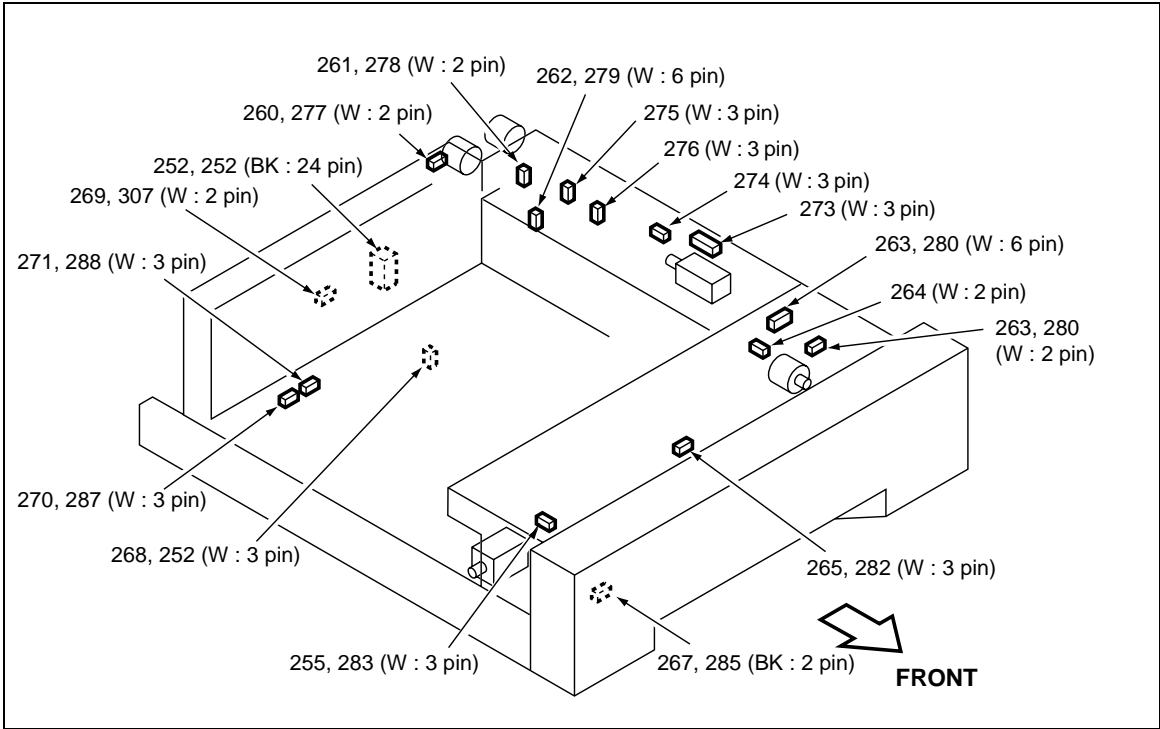
3. Drum Unit



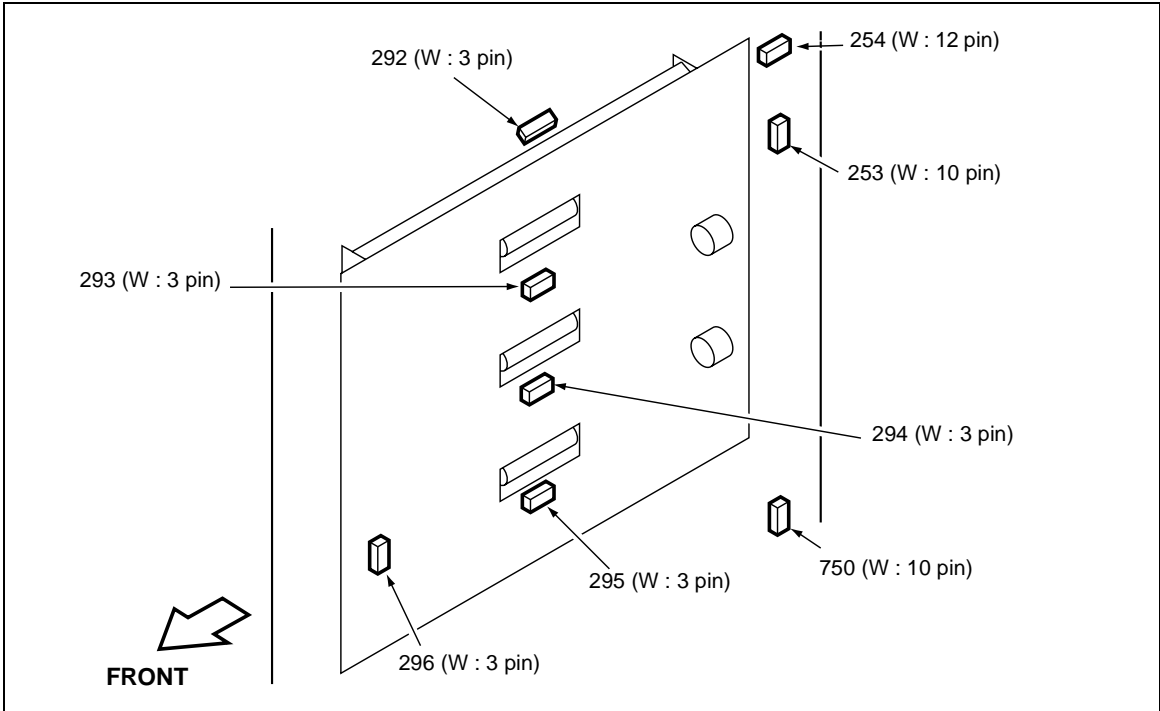
4. Cleaning Unit



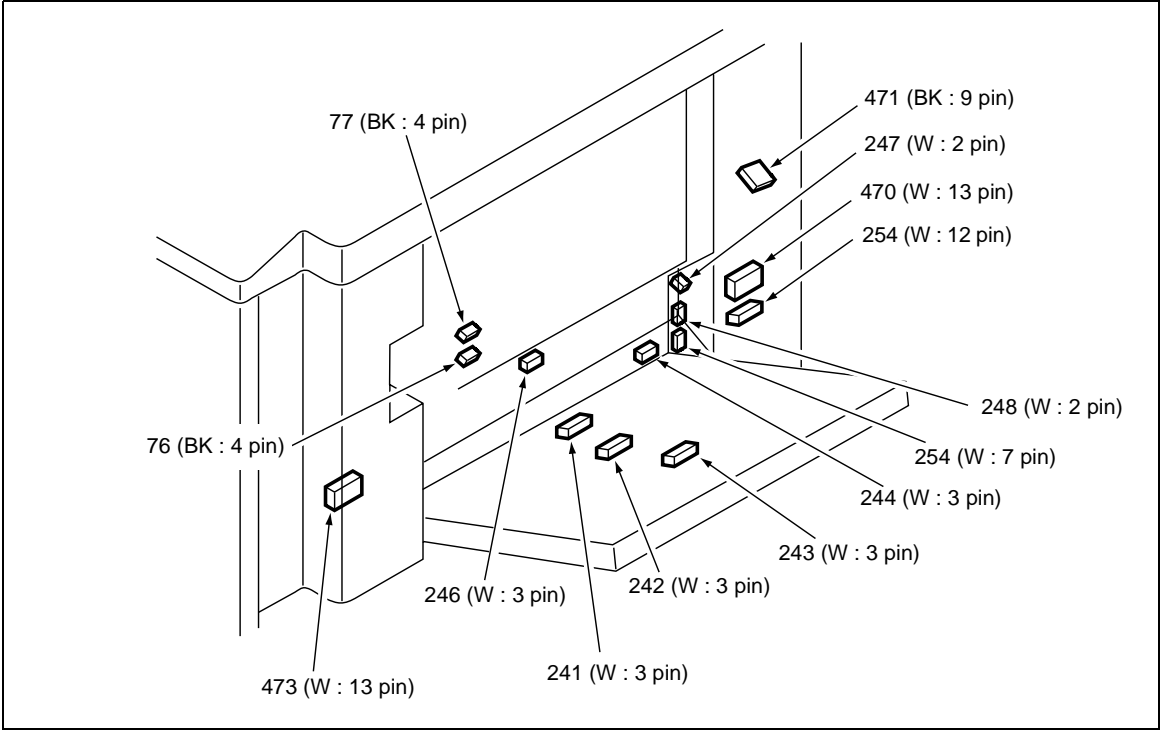
5. Tray 1,2,3



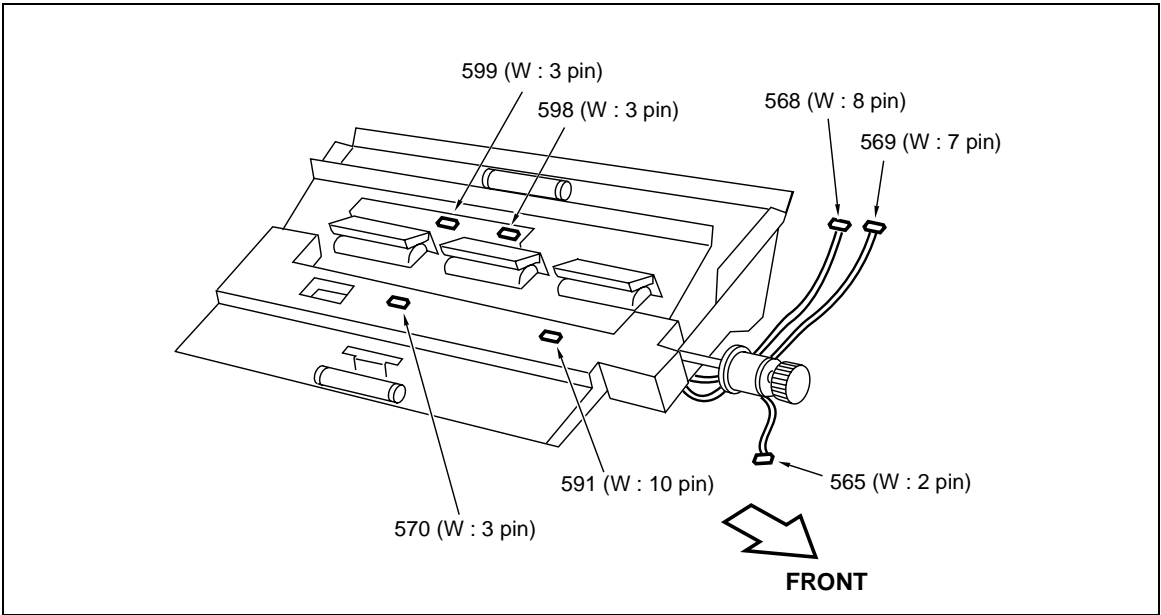
6. Vertical Conveyance Section



7. By-pass Feed Section

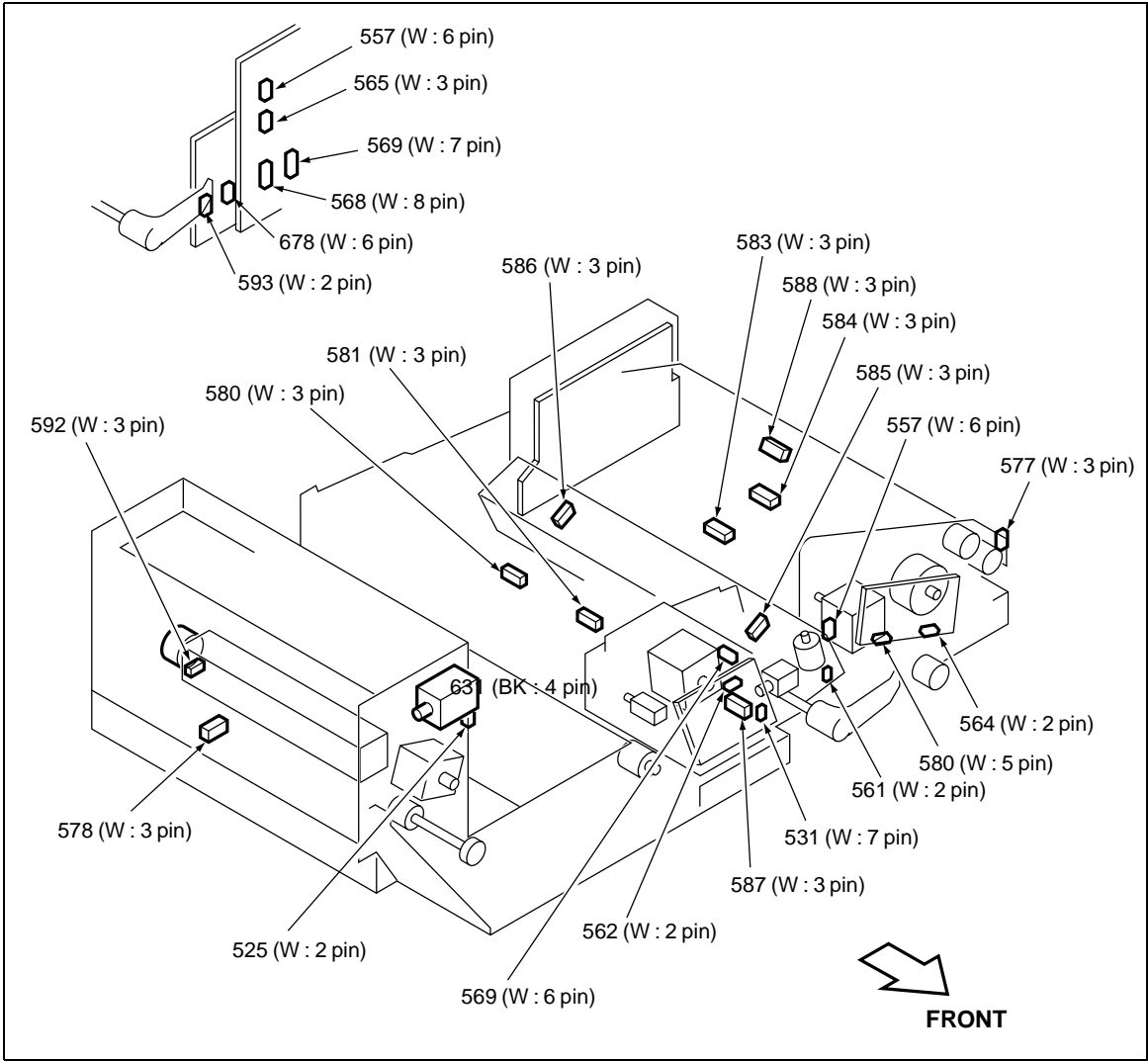


8. Second Paper Feed Section

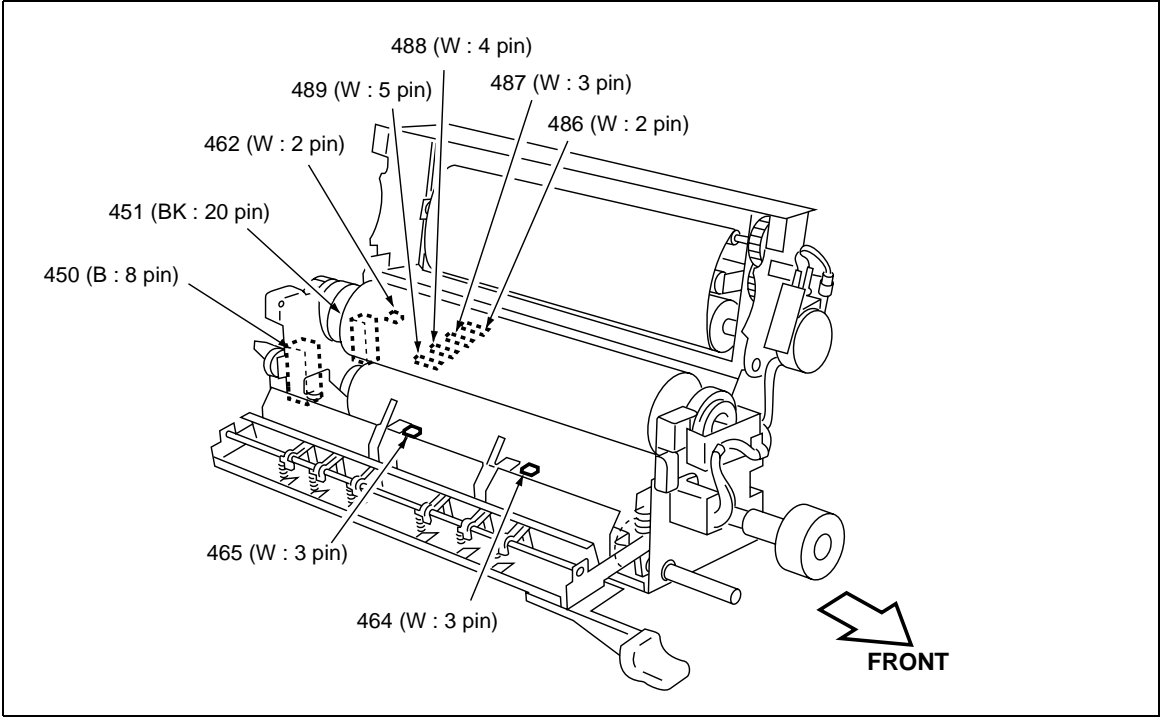


9. ADU unit

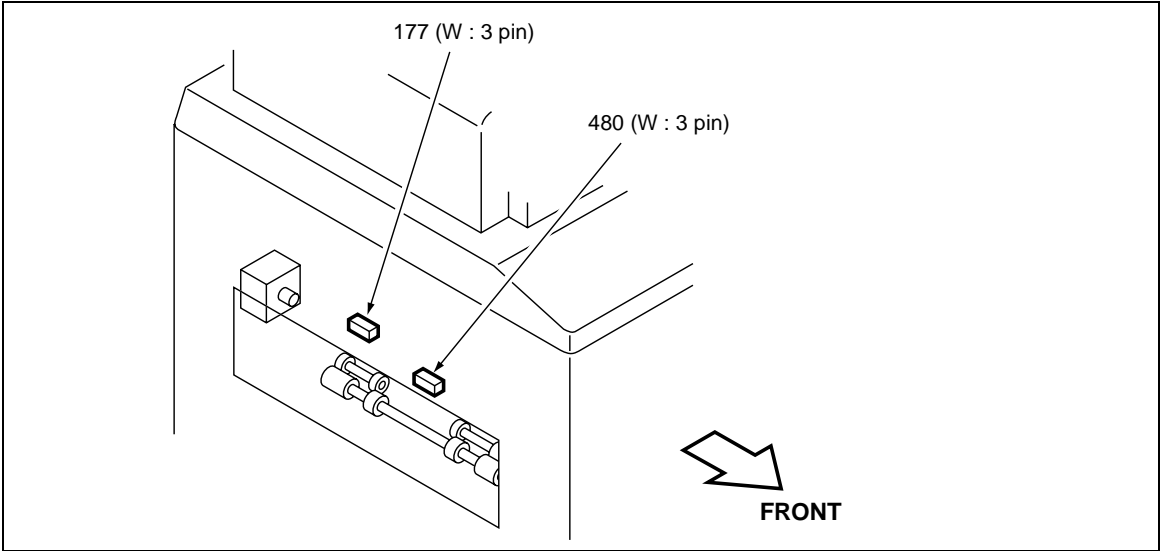
4 ELECTRIC PARTS LIST



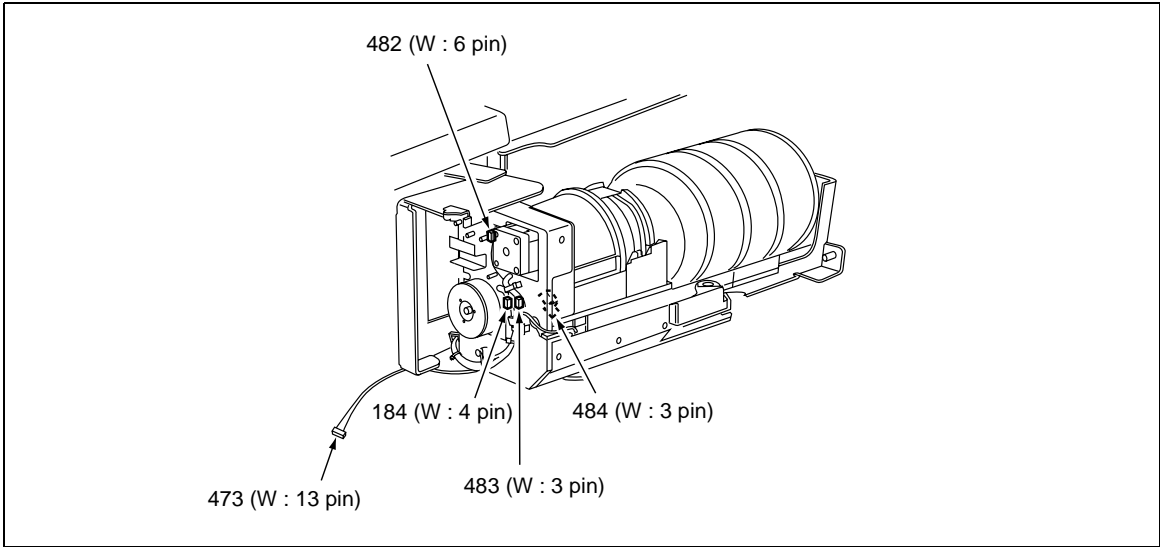
10. Fixing Unit



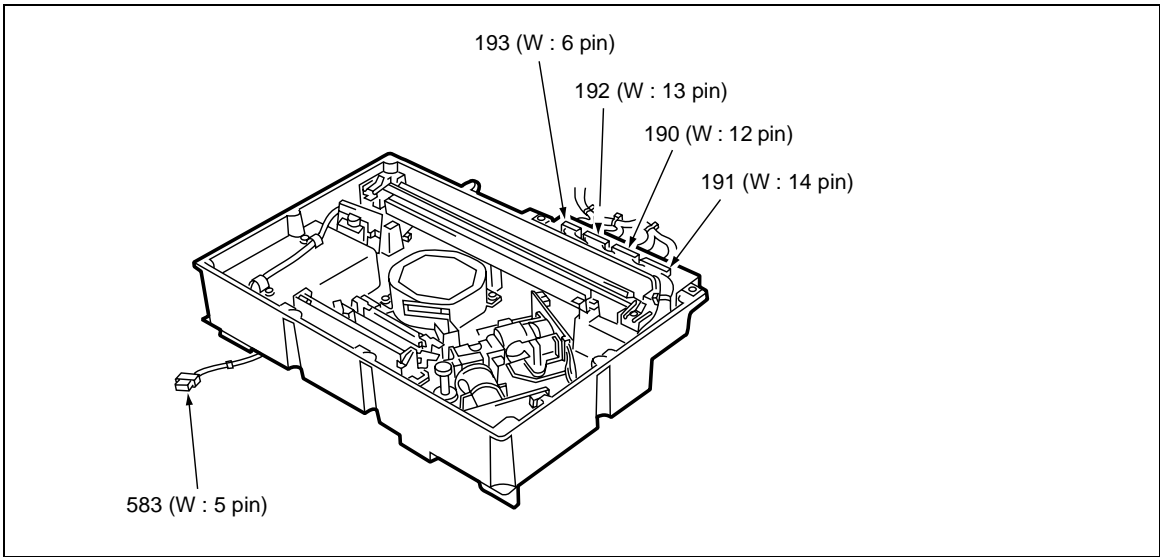
11. Paper Exit Section



12. Toner Supply Unit

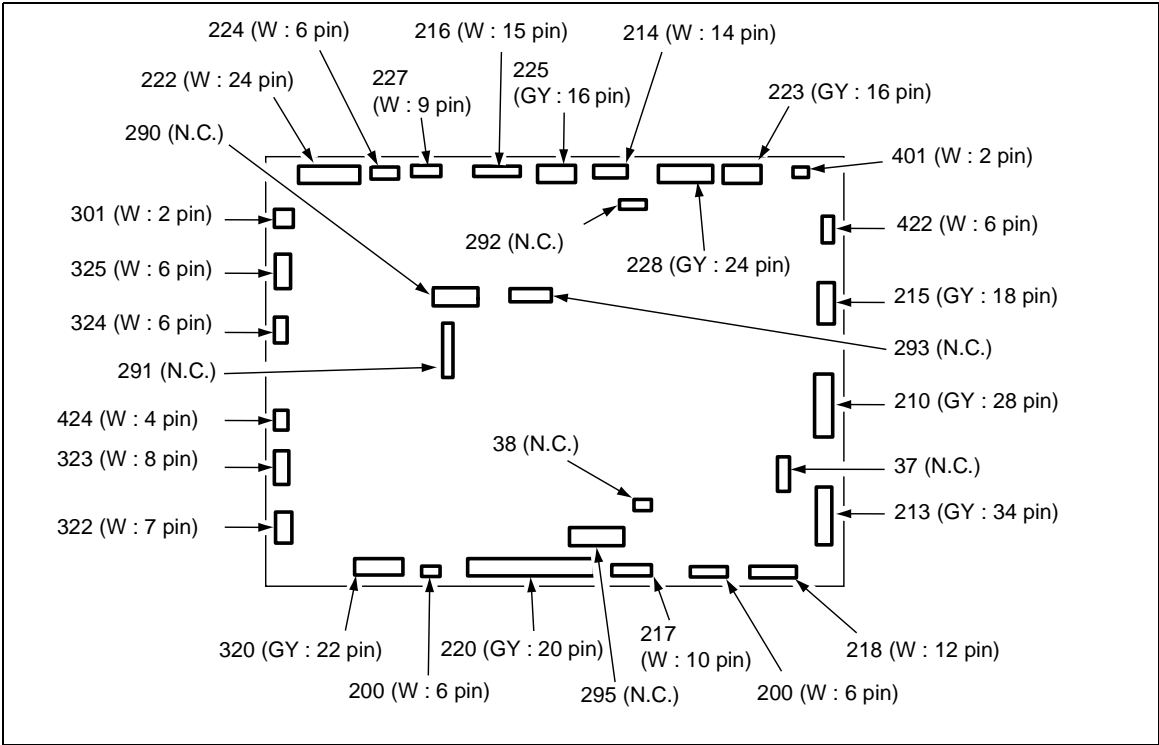


13. Write Section

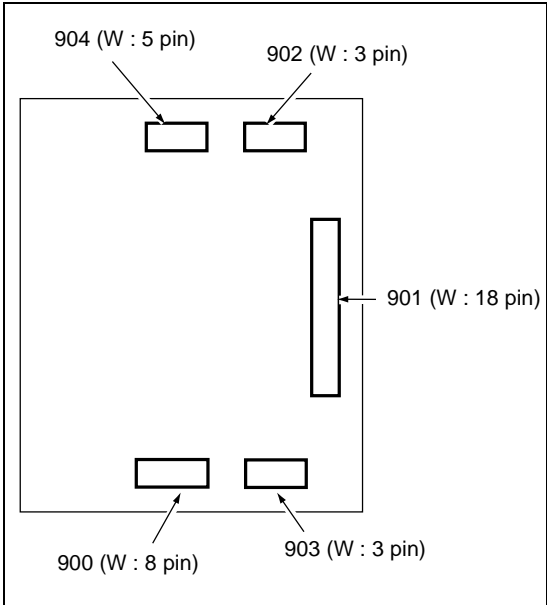


4 ELECTRIC PARTS LIST

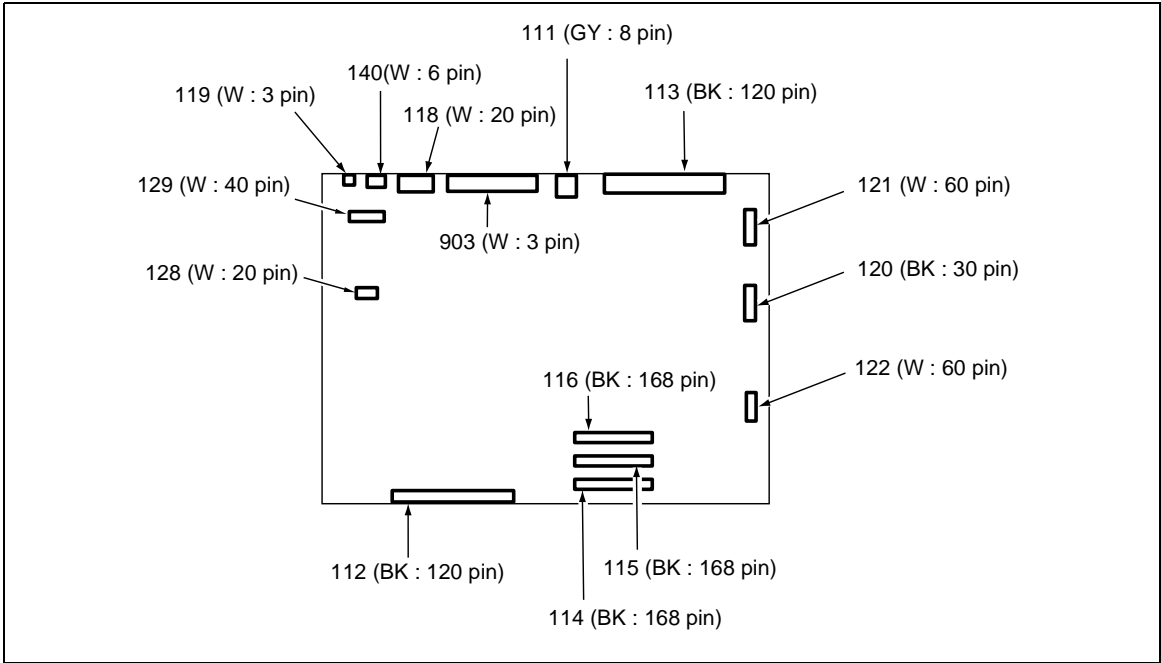
14. Printer Control Board



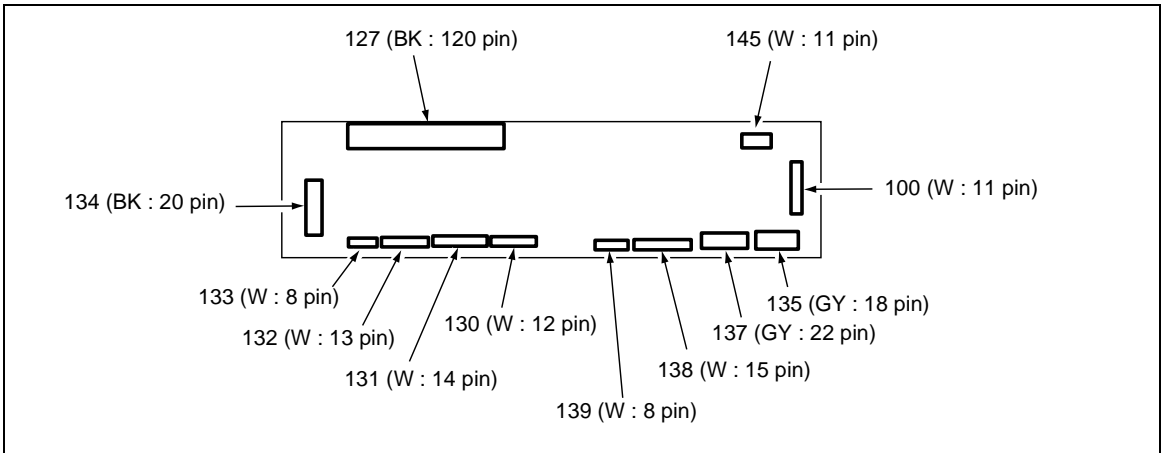
15. Power Supply Management Board



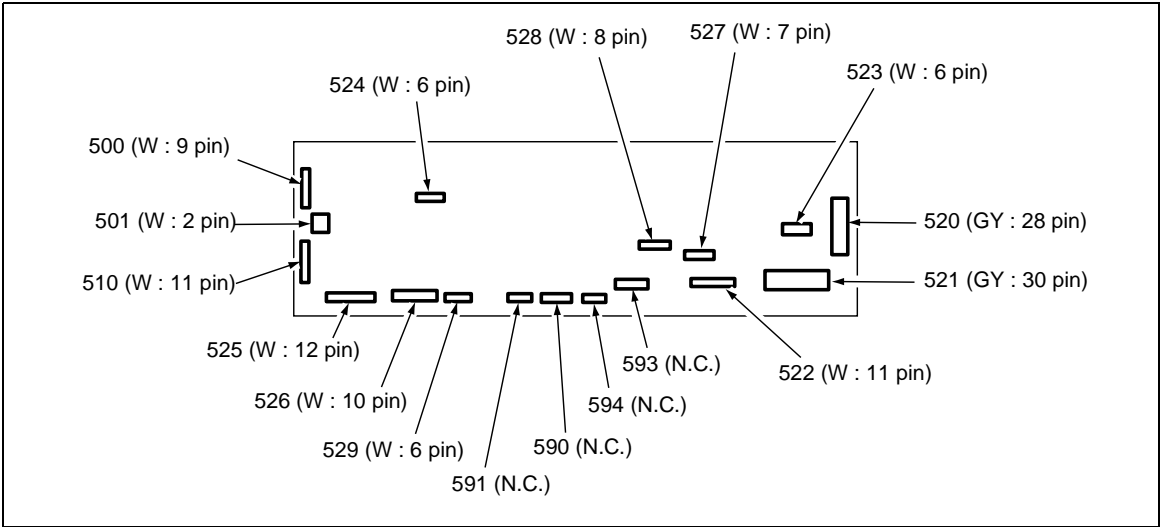
16. Image Control Board



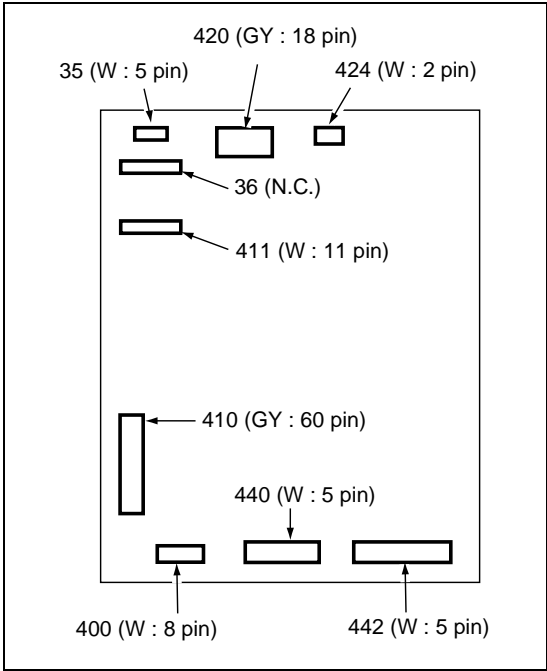
17. ICB I/F Board



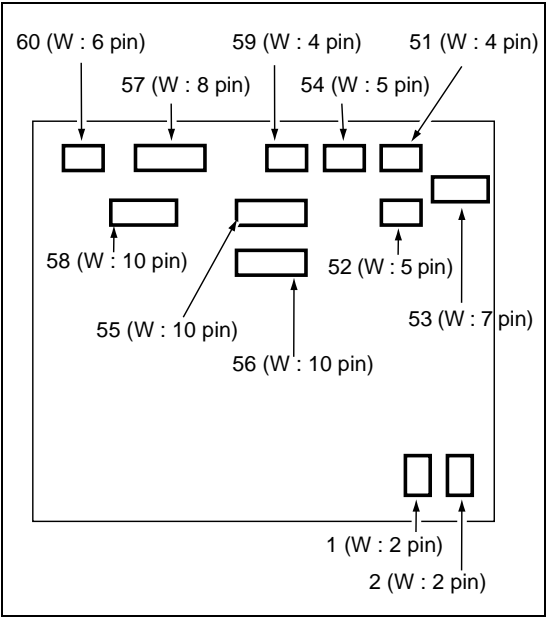
18. ADU Stand Drive Board



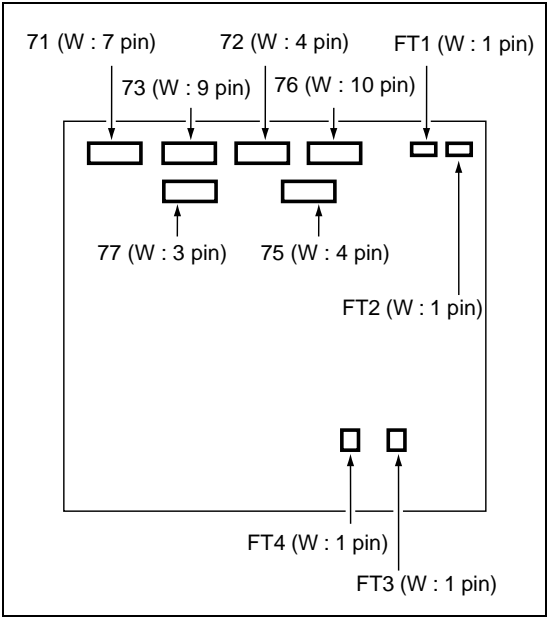
19. AC Drive Board



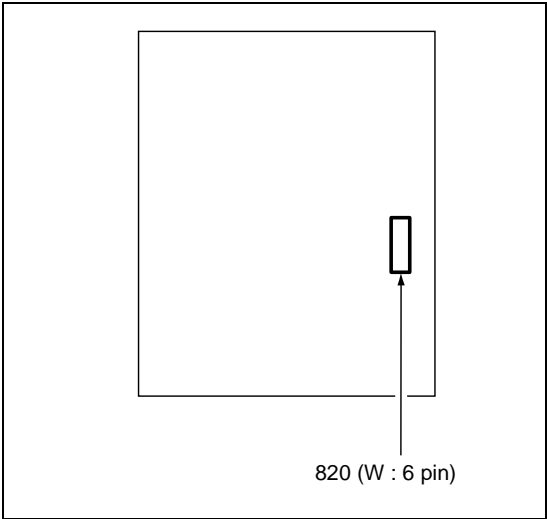
20. DC Power Supply Unit 1



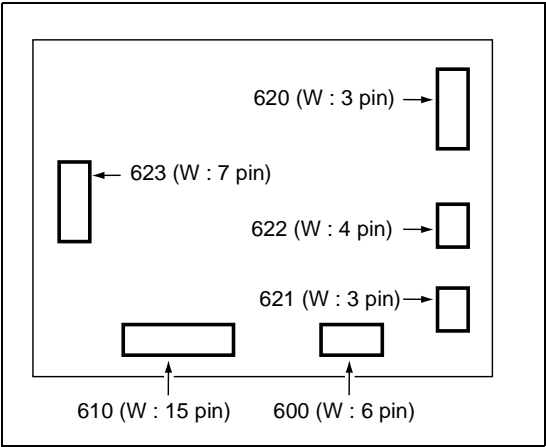
21. DC Power Supply Unit 2



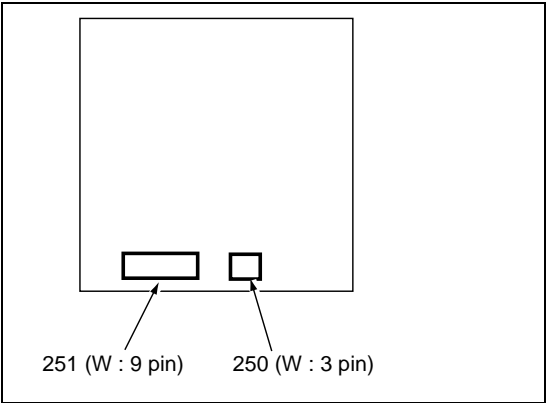
22. DC Power Supply Unit 3



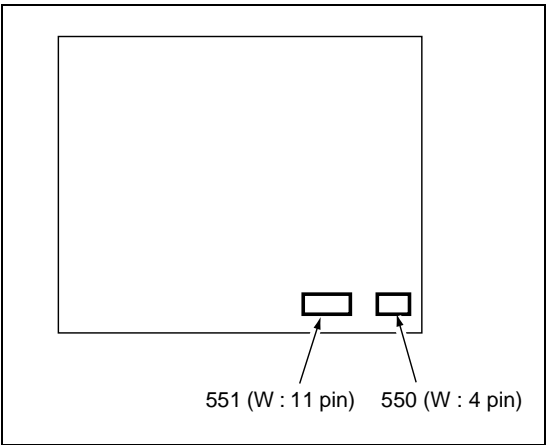
23. Scanner Drive Board



24. High Voltage Unit 1

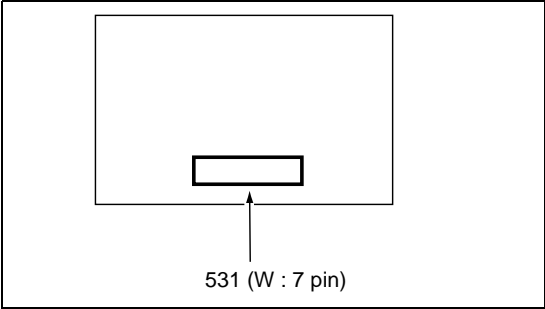


25. High Voltage Unit 2

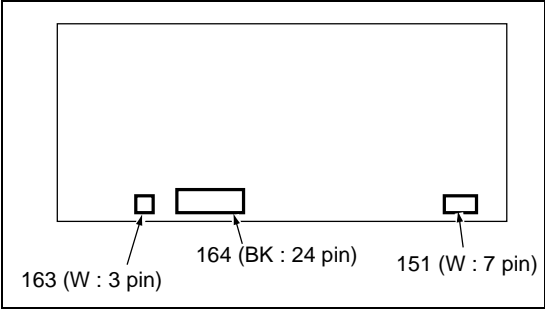


4 ELECTRIC PARTS LIST

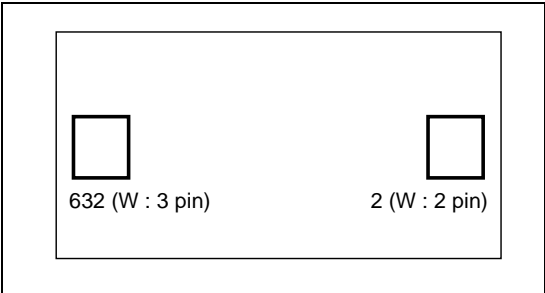
26. Jam Indicator Board



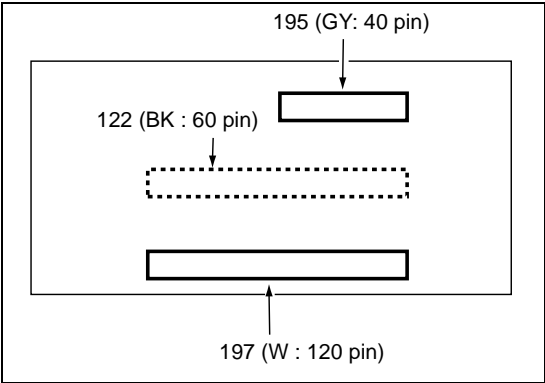
30. Operation Board 2



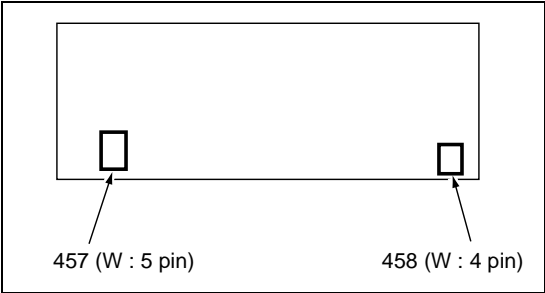
27. L1 Inverter



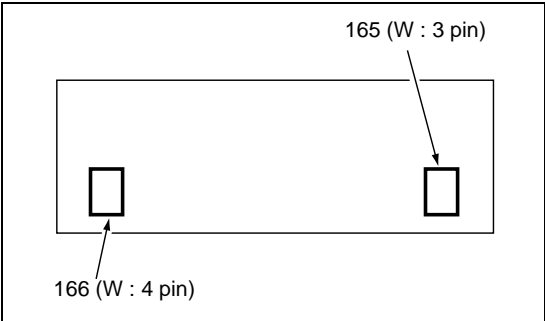
31. Optional I/F Board



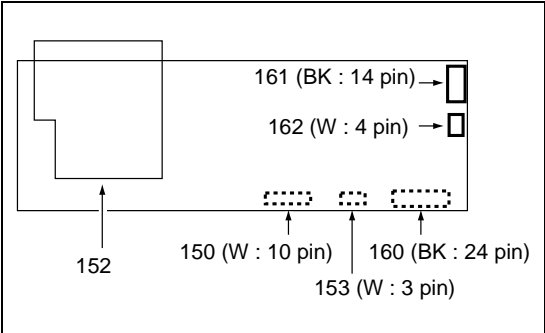
28. Drum Potential Sensor Board



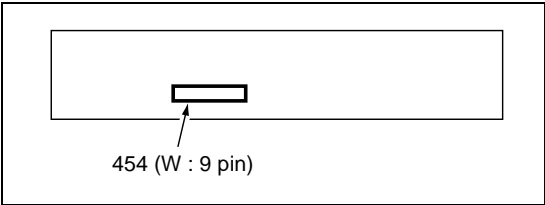
32. OB Inverter



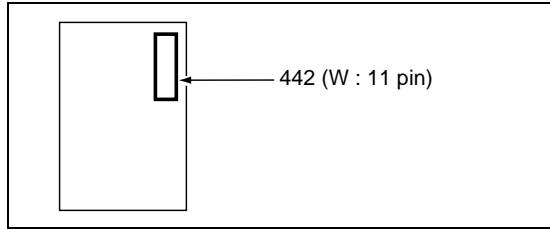
29. Operation Board 1



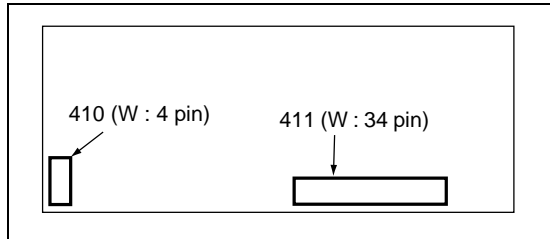
33. Toner Control Sensor Board



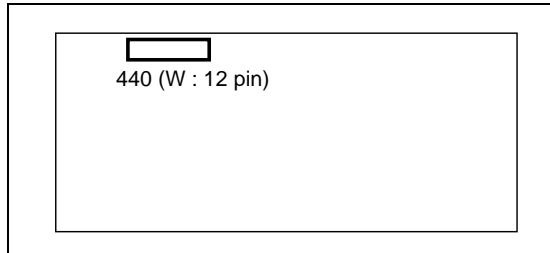
34. Index Sensor Board



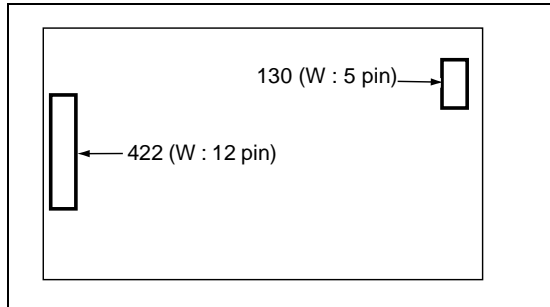
35. A/D Converter Board



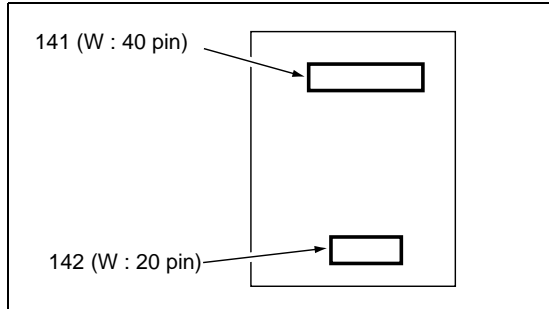
36. Laser Driver Board 1/2



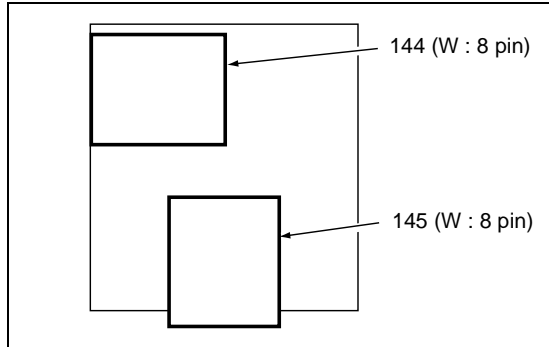
37. Polygon Motor Drive Board



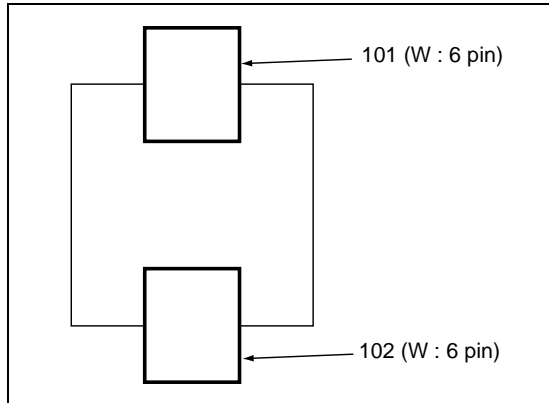
38. Memory Board



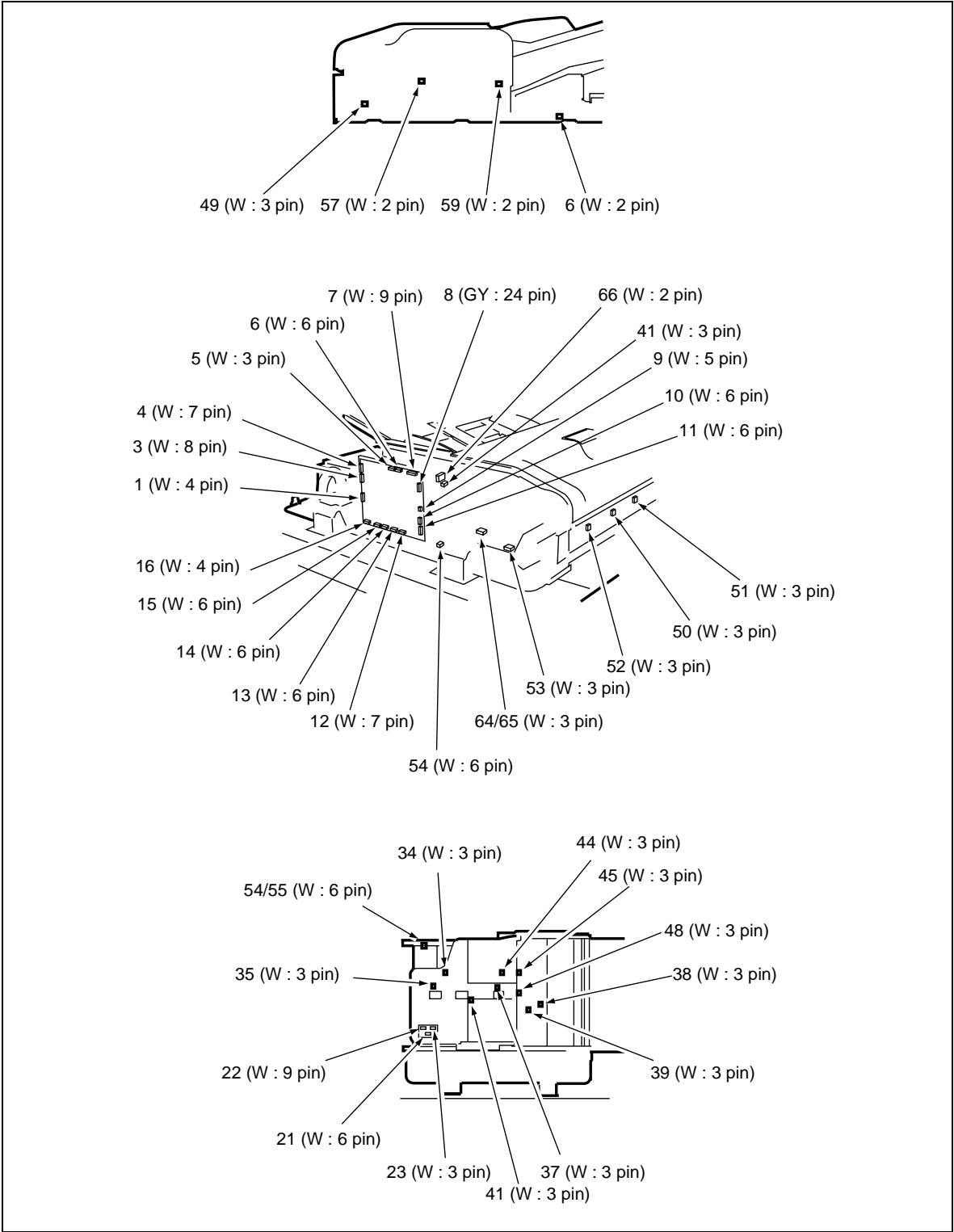
39. LAN I/F Board



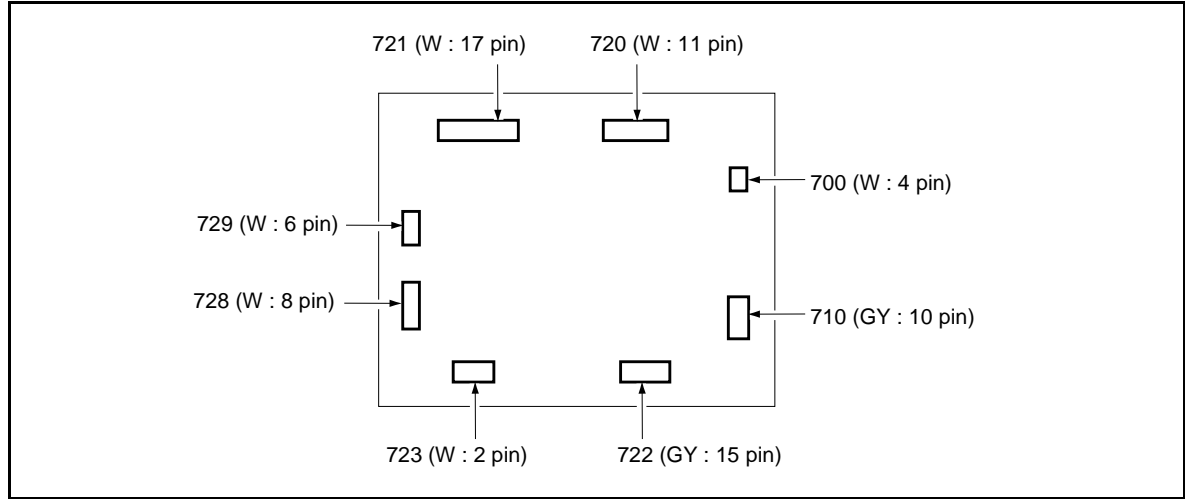
40. Printer Relay Board



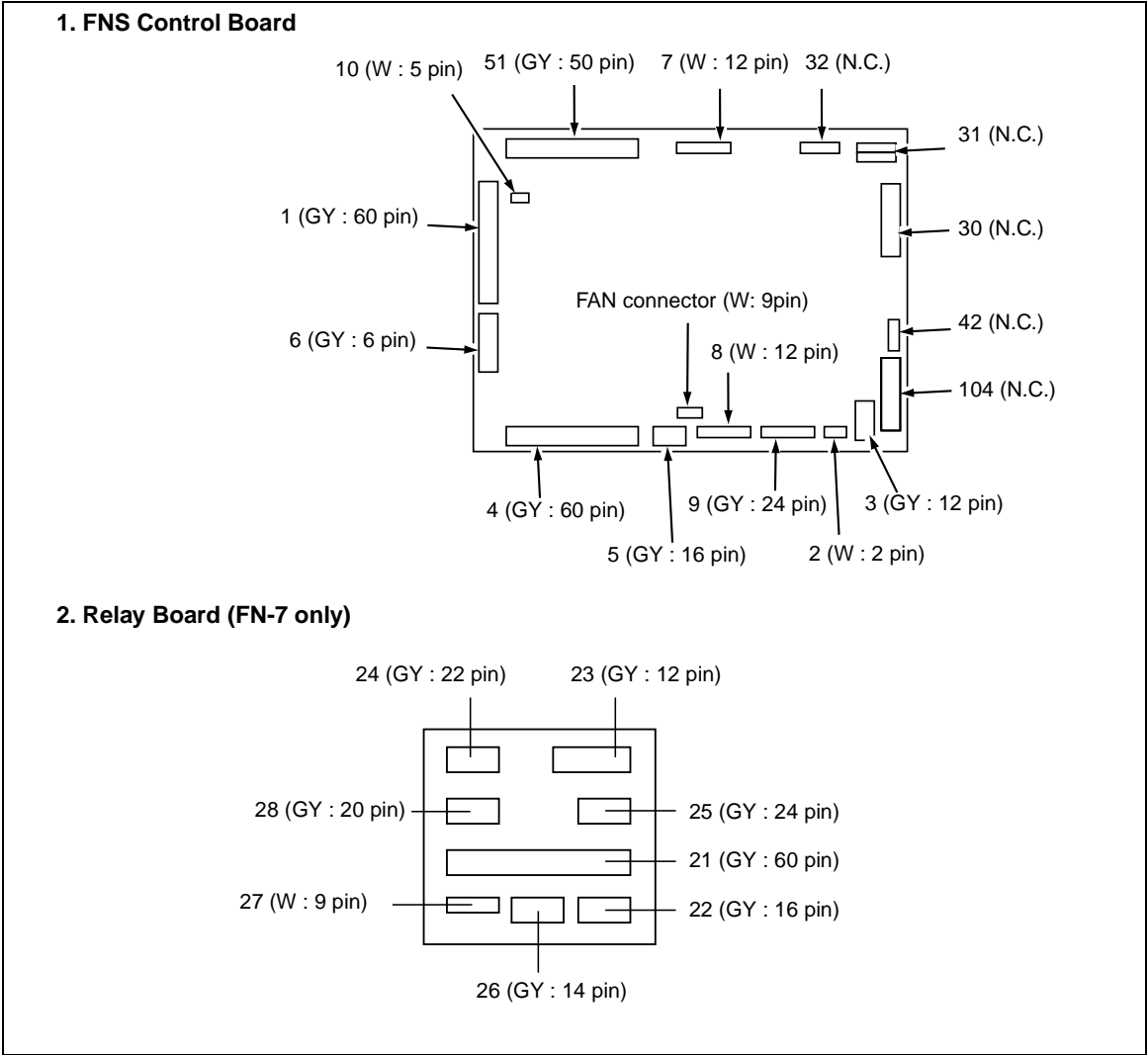
[2] EDH-5 CONNECTOR LAYOUT DRAWING



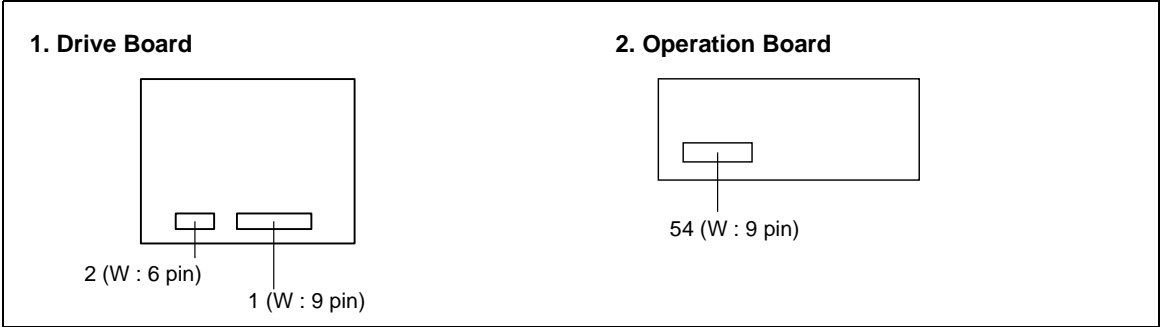
[3] C-403/C-404 Connector Layout Drawing



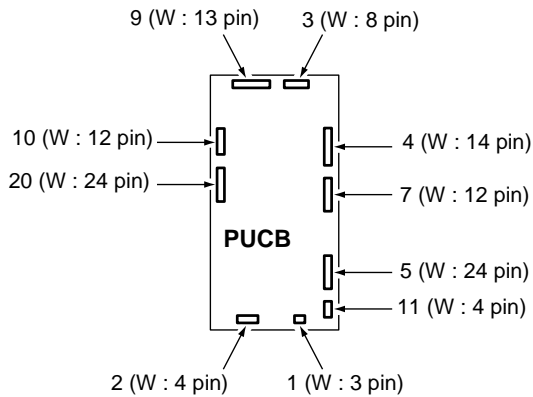
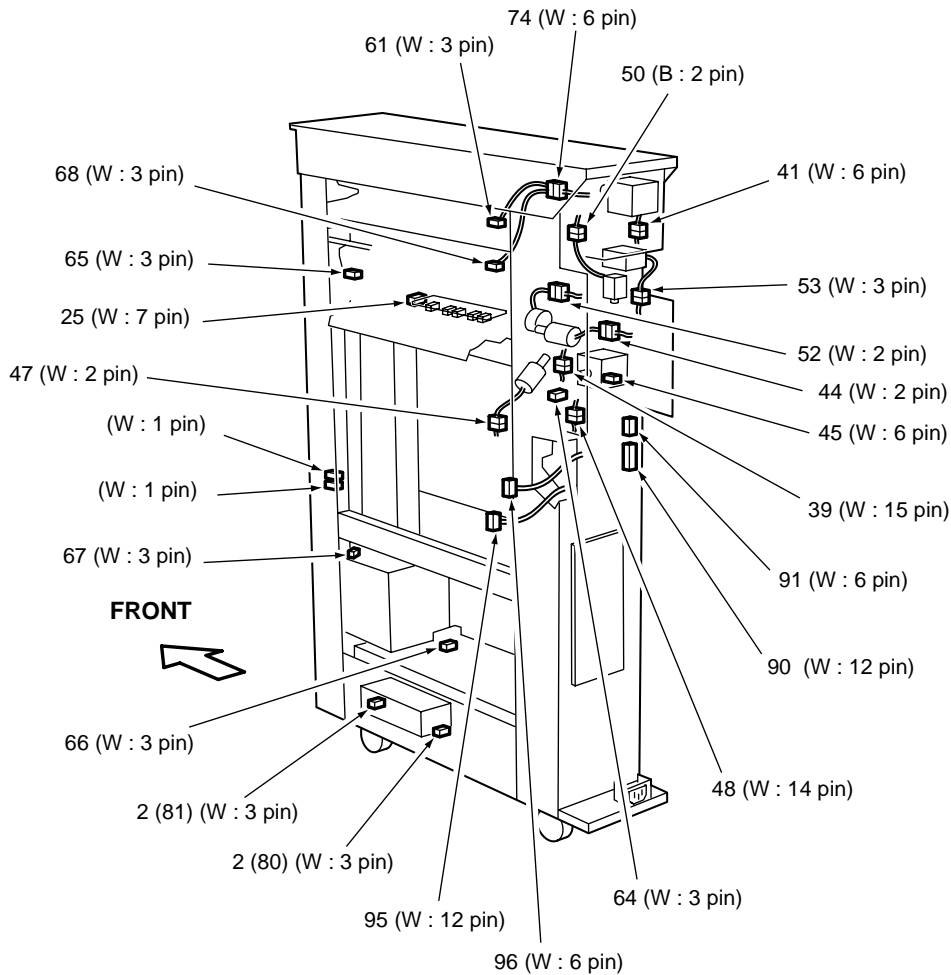
[4] FN-7/FN-115 Connector Layout Drawing



[5] Cover Inserter C Connector Layout Drawing

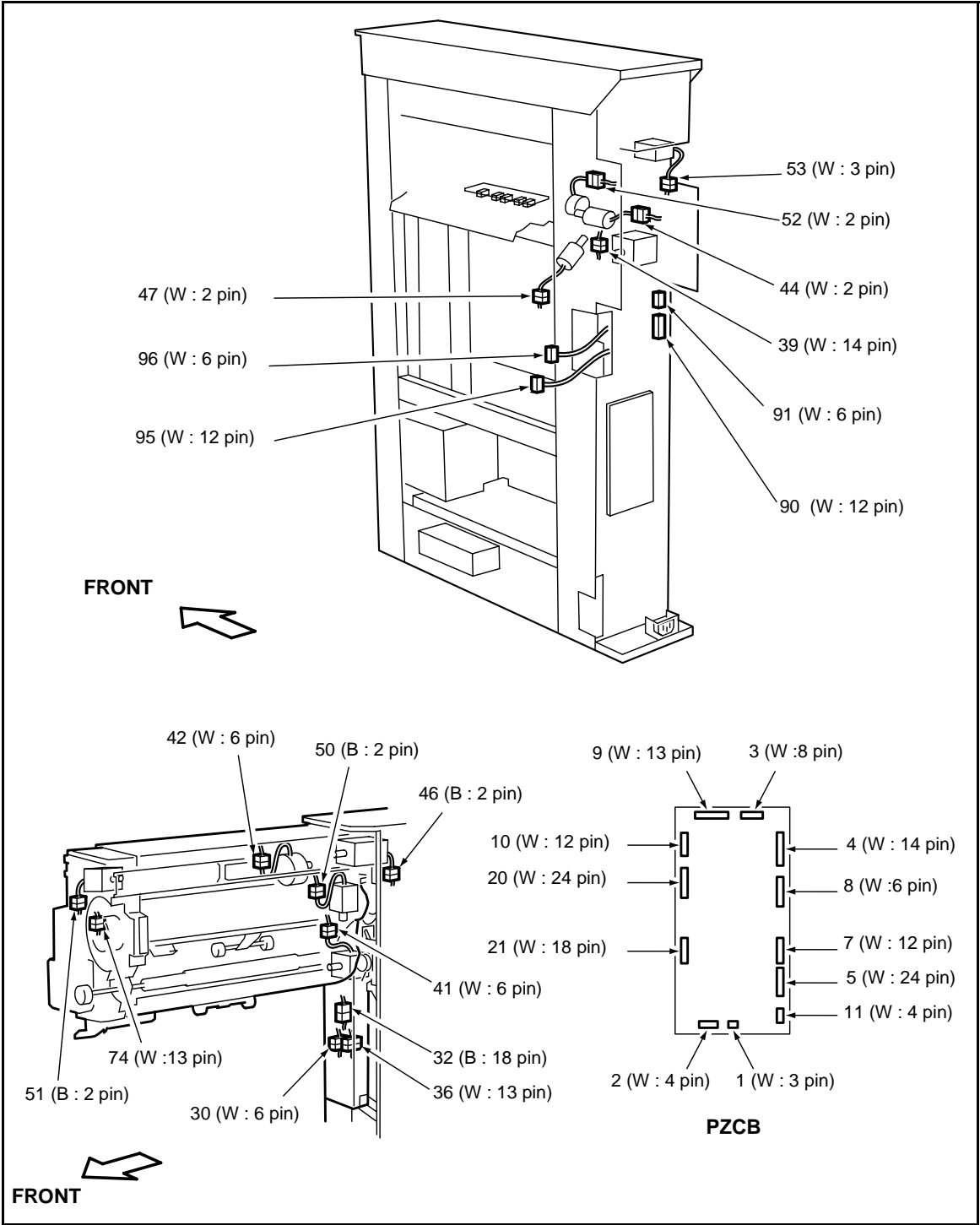


[6] PK-3 Connector Layout Drawing

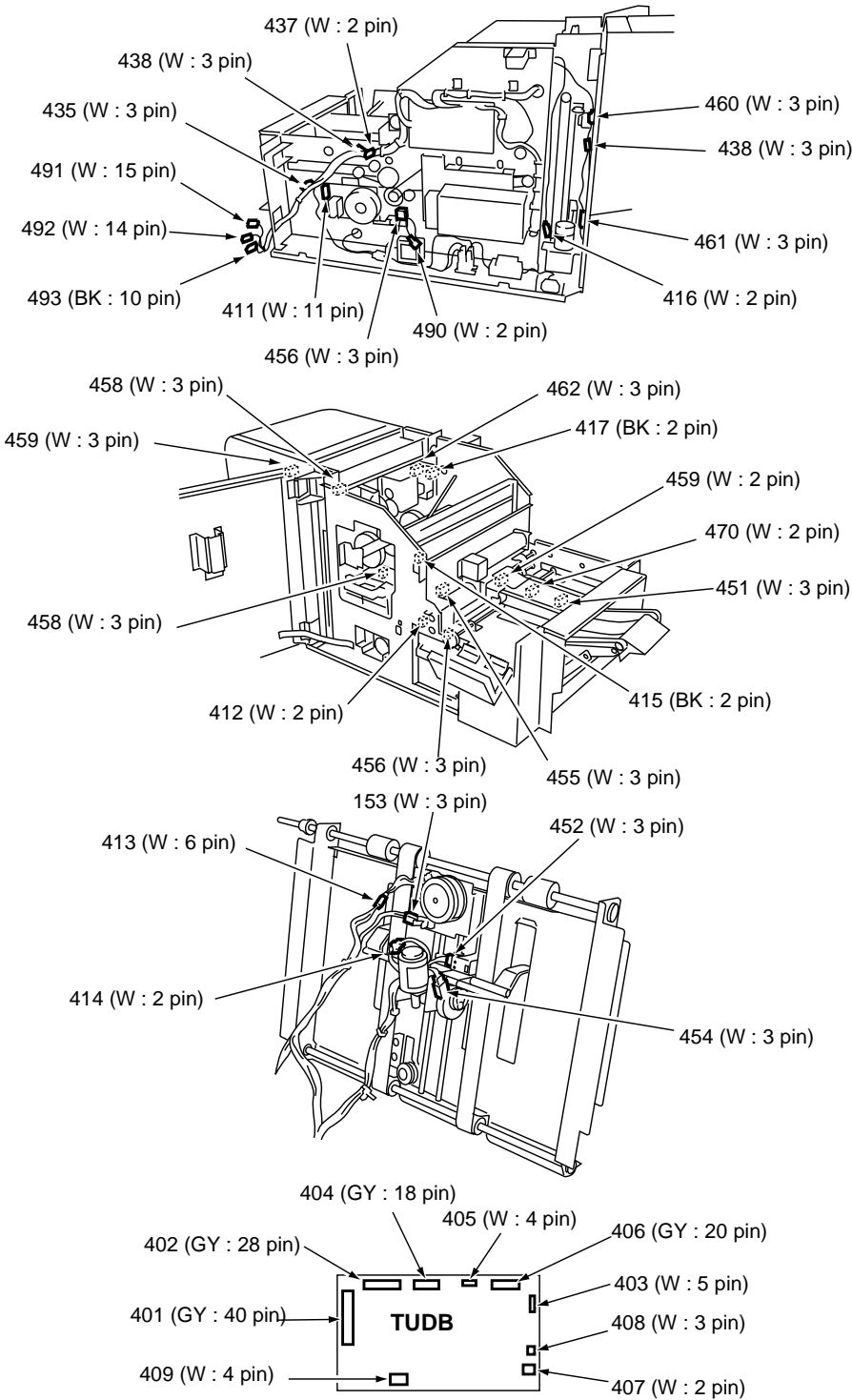


4 ELECTRIC PARTS LIST

[7] ZK-2 Connector Layout Drawing



[8] TMG-2 Connector Layout Drawing



4 ELECTRIC PARTS LIST

JAM CODE LIST

	Classification	Jam Code	Cause	Machine response	Countermeasure
Main body	By-pass tray	J10-1	PS44 (registration) is not turned ON within the specified time after SD11 (pick up (by-pass)) is in the standby state.	If there is paper in the copy process when this jam occurs, the machine stops after completion of paper ejection.	Remove the paper from the by-pass tray and remove the jammed paper.
		J10-2	PS44 (registration) is not turned OFF within the specified time after SD11 (pick up (by-pass)) is turned ON.		
	Tray 1	J11-1	PS48 (paper pre-registration 1) is not turned ON within the specified time after MC4 (pre-registration MC 1) is turned ON	If there is paper in the copy process when this jam occurs, the machine stops after completion of paper ejection.	Draw out the tray and remove the jammed paper.
		J11-2	PS47 (paper feed 1) is not turned ON within the specified time after MC3 (feed MC1) is turned ON.		
		J11-3	PS18 (vertical conveyance 1) is ON during idling.		Open the vertical conveyance door of the main body and remove the jammed paper.
		J11-4	PS47 (paper feed 1) is ON during idling.		Open the vertical conveyance door of the main body and remove the jammed paper.
		J11-5	PS48 (paper pre-registration 1) is ON during idling.		Remove the tray and remove the jammed paper.
	Tray 2	J12-1	PS50 (paper pre-registration 2) is not turned ON within the specified time after MC6 (pre-registration MC2) is turned ON.	If there is paper in the copying process when this jam occurs, the machine stops after completion of paper ejection.	Draw out the tray and remove the jammed paper.
		J12-2	PS49 (paper feed 2) is not turned ON within the specified time after MC5 (feed MC2) is turned ON.		
		J12-3	PS53 (vertical conveyance 2) is ON during idling.		Open the vertical conveyance door of the main body and remove the jammed paper.
		J12-4	PS49 (feed 2) is ON during idling.		
		J12-5	PS50 (paper pre-registration 2) is ON during idling.		Draw out the tray and remove the jammed paper.

	Classification	Jam Code	Cause		Machine response	Countermeasure
Main body	Tray 3	J13-1	Operating	PS52 (paper pre-registration 3) is not turned ON within the specified time after MC8 (pre-registration MC3) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of paper ejection.	Draw out the tray and remove the jammed paper.
		J13-2		PS51 (paper feed 3) is not turned ON within the specified time after MC7 (feed MC3) is turned ON.		
		J13-3	Stationary	PS19 (vertical conveyance 3) is ON during idling.		Open the vertical conveyance door of the main body and remove the jammed paper.
		J13-4		PS51 (paper feed 3) is ON during idling.		Open the vertical conveyance door of the main body and remove the jammed paper.
		J13-5		PS52 (paper pre-registration 3) is ON during idling.		Draw out the tray and remove the jammed paper.
LCT	LCT	J14-1	Operating	PS107 (LT pre-registration) is not turned ON within the specified time after MC102 (LT first paper feed MC) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of paper ejection.	Open the top cover and remove the jammed paper. Open the jam access door and remove the jammed paper.
		J14-2		PS106 (LT feed) is not turned ON within the specified time after MC101 (LT feed drive MC) is turned ON.		
		J14-3	Stationary	PS106 (LT feed) is ON during idling.		
		J14-4		PS107 (LT pre-registration) is ON during idling.		
Main body	Paper feed and conveyance (common to all trays)	J17-1	Operating	PS44 (registration) is not turned ON within the specified time after PS54 (loop) or PS46 (ADU exit) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of copied paper ejection.	Open the front doors, draw out the ADU, open the paper registration and loop roller unit jam removal mechanism and jam access guide B, and remove the jammed paper.

	Classification	Jam Code		Cause	Machine response	Countermeasure
Main body	Paper feed and conveyance (tray 1)	J17-2	Operating	PS54 (loop) is not turned ON within the specified time after PS47 (paper feed 1) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of copied paper ejection.	Open the vertical conveyance door on the main body and remove the jammed paper.
	Paper feed and conveyance (tray 2/3)	J17-3		PS54 (loop) is not turned ON within the specified time after PS53 (vertical conveyance 2) is turned ON.		
	Paper feed and conveyance (tray 2)	J17-4		PS53(vertical conveyance 2) is not turned ON within the specified time after PS49 (paper feed 2) is turned ON.		
	Paper feed and conveyance (tray 3)	J17-5		PS53 (vertical conveyance 2) is not turned ON within the specified time after PS51 (paper feed 3) is turned ON		
LCT	LCT	J17-6		PS54 (loop) is not turned ON within the specified time after PS106 (LT feed detection) is turned ON.		Open the LCT jam access door and remove the jammed paper.
Main body	Paper feed/conveyance	J17-7	Stationary	PS45 (leading edge detection) is ON during idling.		Open the front doors, draw out the ADU, and remove the jammed paper.
		J17-8		PS44 (registration) is ON during idling.		
		J17-9		PS46 (ADU exit) is ON during idling.		
		J17-10		PS54 (loop) is ON during idling.		
	Vertical conveyance door	J19-1	Operating	The vertical conveyance door is opened while copying.		Open the vertical conveyance door on the main body and remove the jammed paper.
LCT	LCT	J19-2		The jam access door or the top cover is opened during copying.		Open the LCT jam access door or top cover, and remove the jammed paper.
Main body	Drum	J21-1	Stationary	The Dmax sensor detected paper at the specified timing in the print sequence.		Open the front door and pull out the ADU stand and remove the jammed paper.
		J21-2		The Dmax sensor is detecting paper during idling.		

	Classification	Jam Code	Cause	Machine response	Countermeasure
Main body	Second paper feed and conveyance	J31-1	PS45 (leading edge detection) is not turned ON within the specified time after MC1 (Registration) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of paper ejection.	Open the front doors, draw out the ADU, and remove the jammed paper. -
		J31-2	PS2 (fixing exit) is not turned ON within the specified time after PS45 (leading edge detection) is turned ON.		
	Fixing/Exit	J32-1	PS61 (paper exit) is not turned ON within the specified time after PS2 (fixing exit) is turned ON.		
		J32-2	PS57 (paper reverse) is not turned ON within the specified time after PS2 (fixing exit) is turned ON.		
		J32-3	PS57 (paper reverse) is not turned ON again within the specified time after PS57 (paper reverse) is turned ON.		
		J32-4	PS61 (paper exit) is not turned ON within the specified time after PS57 (paper reverse) is turned ON again.		
		J32-5	PS61 (paper exit) is not turned OFF within the specified time after PS61 (paper exit) is turned ON.		
		J32-6	PS61 (paper exit) is ON during idling.		
		J32-8	PS57 (paper reverse) is ON during idling.		
		J32-9	PS2 (fixing exit) is ON during idling.		
		J32-10	PS8 (paper reverse/conveyance) is ON during idling.		
		J32-11	PS3 (fixing jam) is ON during idling.		
	Front door	J51-1	The front right or left door is opened during copying.	The machine stops immediately.	

	Classification	Jam Code	Cause	Machine response	Countermeasure
RADF	EDH-5	J61-1	PS301 (RADF open/close detection) is turned OFF during RADF operation.	RADF stops immediately. If there is a paper in copying process, the machine stops after completion of copied paper ejection.	Open the jam access cover and remove jammed paper.
		J61-2	MS301 (cover open/close) is turned OFF during RADF operation.		
		J62-1	PS306 (original registration detection) remains OFF within the specified time after start of prefeed.		
		J62-2	PS308 (original conveyance detection) is not turned ON within the specified time after start of prefeed at the front surface of the two-sided original (including one-sided original).		
		J62-3	PS308 (original conveyance detection) is not turned ON within the specified time after start of prefeed at the back surface of the two-sided original.		
		J62-4	PS308 (original conveyance detection) is not turned OFF within the specified time after PS308 turning ON, when M301 (original conveyance roller drive) is rotating in the forward direction.		
		J62-5	PS308 (original conveyance detection) is not turned OFF within the specified time when M301 (original conveyance roller drive) is rotating in the backward direction.		
		J62-6	When a large-size two-sided original is fed into the reversal section, PS309 (original reversal detection) is not turned ON within the specified time after turning ON of PS308 (original conveyance detection).		
		J62-7	When a large-size one-sided original is ejected, PS307 (original exit 1) is not turned ON within the specified time after turning ON of PS308 (original conveyance detection).		
		J62-8	When a large-size two-sided original is ejected, PS307 (original exit 1) is not turned ON within the specified time after turning ON of PS309 (original reversal detection).		

	Classification	Jam Code	Cause	Machine response	Countermeasure
RADF	EDH-5	J62-9	When a large-size two-sided original is ejected, PS307 (original exit 1) is not turned OFF within the specified time after PS307 turning ON.	RADF stops immediately. If there is a paper in copying process, the machine stops after completion of copied paper ejection.	Open the jam access cover and remove jammed paper.
		J62-10	When a large-size two-sided original is ejected, PS307 (original exit 1) is not turned OFF within the specified time after PS307 turning ON.		
		J63-1	When a large-size two-sided original is fed out of the reversal section, PS309 (original reversal detection) is not turned ON.		
		J63-2	When a large-size two-sided original is fed into the reversal section, PS309 (original reversal detection) is not turned OFF within the specified time.		
		J63-3	When a large-size two-sided original is fed out of the reversal section, PS309 (original reversal detection) is not turned OFF within the specified time.		
		J63-4	When a small-size one-sided original is ejected, PS314 (original exit 2) is not turned ON within the specified time after turning ON of PS309 (original reversal detection).		
		J63-5	When a small-size two-sided original is ejected, PS314 (original exit 2) is not turned ON within the specified time after turning ON of PS313 (original exit reverse detection).		
		J63-6	When a small-size one-sided original is ejected, PS314 (original exit 2) is not turned OFF within the specified time after PS314 turning ON.		
		J63-7	When a small-size two-sided original is ejected, PS314 (original exit 2) is not turned OFF within the specified time after PS314 turning ON.		
		J63-8	When a small-size two-sided original is fed into the reversal section, PS309 (original reversal detection) is not turned ON within the specified time after turning ON of PS308 (original conveyance detection).		

	Classification	Jam Code	Cause	Machine response	Countermeasure
RADF	EDH-5	J63-9	When a small-size two-sided original is fed out of the reversal section, PS309 (original reversal detection) is not turned ON.	RADF stops immediately. If there is a paper in copying process, the machine stops after completion of copied paper ejection.	Open the jam access cover and remove jammed paper.
		J63-10	When a small-size two-sided original is fed into the reversal section, PS309 (original reversal detection) is not turned OFF.		
		J63-11	When a small-size two-sided original is fed out of the reversal section, PS309 (original reversal detection) is not turned OFF after PS309 turning ON.		
		J65-1	PS306 (original registration detection) is ON during idling.		
		J65-2	PS308 (original conveyance detection) is ON during idling.		
		J65-4	PS309 (original reversal detection) is ON during idling.		
		J65-8	PS307 (original exit 1) is ON during idling.		
		J65-10	PS313 (original exit reverse detection) is ON during idling.		
		J65-20	PS314(original exit 2) is ON during idling.		
		J65-40	PS304(reverse jam detection) is ON during idling.		

	Classification	Jam Code	Cause	Machine response	Countermeasure
FNS	FN-7/FN-115	J71-1	The front cover or exit cover is opened during copying.	FNS/main body stops immediately.	Remove the jammed paper from the FNS or the main body.
TU	TMG-2	J71-2	The front door is opened during copying, or the stacker door is opened during trimmer operation.		
PZ	ZK-2	J71-3	Front door is opened while copying.		
FNS	FN-7/FN-115	J72-16	PS4(FNS entrance passage) is not turned ON within the specific time after the main body paper exit PS is turned ON.		
		J72-17	PS10(paper exit 2) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON.		
		J72-18	PS5(stacker conveyance passage) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON (in staple mode).		
		J72-19	PS5(stacker conveyance passage) is not turned OFF within the specific time after it turns ON.		
		J72-20	PS6(paper exit 1) is not turned ON within the specific time after the paper exit operation is started (in staple mode).		
		J72-21	PS6(paper exit 1) is not turned OFF within the specific time after it turns ON after the paper exit operation is started (in staple mode).		
		J72-22	PS1(subtray paper exit) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON (in subtray paper exit)..		
		J72-23	PS1(subtray paper exit) is not turned OFF within the specific time after it turns ON (in subtray paper exit).		
		J72-24	PS28(folding passage/1) is not turned ON within the specific time after the staple is completed.		
		J72-25	PS25(folding paper exit) is not turned ON within the specific time after folding is completed.		
		J72-26	PS25(folding paper exit) is not turned OFF within the specific time after it turns ON.		

	Classification	Jam Code	Cause	Machine response	Countermeasure
FNS	FN-7/FN-115	J72-27	PS20(stacker no paper detection) is OFF when the staple is started.	Machine stops immediately.	Remove the jammed paper from the FNS or the main body.
		J72-28	PS5(stacker conveyance passage) is not turned OFF within the specific time after it turns ON.		
		J72-29	PS10(paper exit 2) is not turned OFF within the specific time after it turns ON.		
		J72-30	PS6(paper exit 1) is not turned OFF within the specific time after it turns ON.		
		J72-32	PS101(entrance) is not turned ON within the specific time after PS25(folding paper exit) turns ON.		
TU	TMG-2	J72-33	PS102(conveyance) is not turned ON within the specific time after PS101(entrance) turns ON.		
		J72-34	The paper has not pass the PS108(exit) within the specific time after M101(conveyance) turns ON.		
PI	Cover Inserter C	J72-35	PS201(sheet passage) is not turned ON within the specific time after MC201(paper feed) is turned ON.		Remove the jammed paper from the PU, PZ or the main body.
		J72-36	PS5(stacker conveyance passage) is not turned ON within the specific time after PS201(sheet passage) is turned ON.		
		J72-37	PS10(paper exit 2) is not turned ON within the specific time after PS201(sheet passage) is turned ON.		
PU/PZ	PK-3/ZK-2	J72-38	Leading/trailing/side edge PS on paper edge PS is not turned ON within the specific time after the main body paper exit PS is turned ON.		
		J72-39	Leading/trailing/side edge PS on paper edge PS is not turned OFF within the specific time after it turns ON.		
		J72-40	PS1(passage) is not turned ON within the specific time after leading/trailing/side edge PS on paper edge PS is turned ON.		
		J72-41	PS1(passage) is not turned ON within the specific time after it turned ON.		

	Classification	Jam Code	Cause	Machine response	Countermeasure
4 ELECTRIC PARTS LIST	PZ	ZK-2	J72-42	Machine stops immediately.	Remove the jammed paper from the PU,PZ or the main body.
	PU/PZ	PK-3/ZK-2	J72-43		
			J72-44		
			J72-45		
			J72-46		
			J72-47		
			J72-48		
	PZ	ZK-2	J72-49		
			J72-50		
			J72-51		
	FNS	FN-7/FN-115	J72-81		Remove the jammed paper from the FNS or the main body.
			J72-82		

	Classification	Jam Code	Cause	Machine response	Countermeasure
FNS	FN-7/FN-115	J72-83	Operating PS30(clincher HP/R), PS33 (clincher HP/F), PS31(stapler HP/R) and PS34(stapler HP/F) are not turned ON within the specific time after M21(clincher R), M23(clincher/ F), M22(stapler R) and M24(stapler/ F) go ON.	Machine stops immediately.	Remove the jammed paper from the FNS or the main body.
		J72-90	FNS does not stop within the specific time after it receives start-operation signal from the main body.		
		J73-1	PS6(paper exit 1) is ON during idling.		
		J73-2	PS5(stacker conveyance passage) is ON during idling.		
		J73-3	PS26(folding passage/2) is ON during idling.		
		J73-4	PS13(entrance paper detection) is ON during idling.		
		J73-5	PS4(FIN entrance passage) is ON during idling.		
		J73-6	PS10(paper exit 2) is ON during idling.		
		J73-7	PS1(subtray paper exit) is ON during idling.		
		J73-8	PS20(stacker no paper detection) is ON during jamming at the paper exit.		
		J73-9	PS28(folding passage/1) is ON during idling.		
		J73-10	PS25(folding paper exit) is ON during idling.		
			Stationary		
TU	TMG-2	J73-11	PS101(entrance) is ON during idling.		Remove the jammed paper from the FNS or the main body.
		J73-12	PS102(conveyance) is ON during idling.		
		J73-13	PS108(exit) is ON during idling.		
PI	Cover Inserter C	J73-14	PS201(sheet passage) is ON during idling.		Remove the jammed paper from the PI or the main body.
PU/PK	PK-3/ZK-2	J73-15	The following sensors are ON during idling: -Leading/trailing PS on paper edge PS -PS1 (passage) -PS8 (exit)		Remove the jammed paper from the PK, PU or the main body.

	Classification	Jam Code	Cause	Machine response	Countermeasure
Main body	ADU	J92-1	PS58 (ADU paper reverse) is not turned ON within the specified time after PS57 (paper reverse) is turned ON.	If there is a paper in copying process when this jam occurs, the machine stops after completion of paper ejection.	Open the front doors, draw out the ADU, and remove the jammed paper.
		J92-2	PS58 (ADU paper reverse) is not turned ON again within the specified time after PS58 (ADU paper reverse) is turned ON.		
		J92-3	PS58 (ADU paper reverse) is ON during idling.		
		J93-1	PS59 (ADU deceleration) is not turned ON within the specified time after PS58 (ADU paper reverse) is turned ON.		
		J93-2	PS59 (ADU deceleration) is ON during idling.		
		J93-3	PS9 (ADU paper conveyance) is ON during idling.		
		J93-4	PS8 (paper reverse/ conveyance) is ON during idling.		
		J94-1	PS60 (ADU pre-registration) is not turned ON within the specified time after PS59 (ADU deceleration) is turned ON.		
		J94-2	PS46 (ADU exit) is not turned ON within the specified time after PS60 (ADU pre-registration) is turned ON.		
		J94-3	PS60 (ADU pre-registration) is ON during idling.		

ERROR CODE LIST

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Drive	F13-01	Check on M4 (paper feed) rotation abnormality signal. An abnormal detection signal is detected two consecutive times (the first signal is ignored) at specified time after turning ON of M4.	The machine stops immediately and RL1 (main) is turned OFF .	M4 (paper feed) PRCB (printer control board)
		F13-02	M101 (LT paper feed) rotation speed error signal check. An abnormal detection signal is detected two consecutive times (the first signal is ignored) at specified time after turning ON of M101.		M101 (LT paper feed) LTDB (LT drive board)
		F13-03	Check on blown fuse of M6 (loop roller) in PRCB. An M6 abnormal detection signal (blown fuse) is detected when M6 is ON.	If there is a paper in copying process when this trouble occurs, the machine stops after completion of paper ejection. RL1 (main) is turned OFF.	M6 (loop roller) DCDB (DC drive board) PRCB (printer control board) M6 harness short circuit with the ground
	Tray 1	F18-10	M19 (up drive 1) lock detection. An M19 abnormal detection signal is detected when M19 is ON.	The machine stops immediately and RL1 (main) is turned OFF. Error code is not displayed on operation panel. It is displayed only on data collection and list output. Message "Please load paper in tray 1." is displayed on operation panel because tray has not completed ascending.	M19 (up drive 1) DCDB (DC drive board) PRCB (printer control board) PS20 (tray upper limit 1) DCPS2 (DC power supply unit 2) Connector connection failure Tray trailing edge limit plate position error Paper stacking error Tray 1)
		F18-11	PS20 (tray upper limit 1) which has been OFF is not turned ON within 10 seconds of upward movement started by turning ON of M19 (up drive 1). At this time, a trouble detection signal (blown fuse) is detected.		
		F18-12	PS20 (tray upper limit 1) which has been OFF is not turned ON within 10 seconds of upward movement started by turning ON of M19 (up drive 1). At this time, an abnormal detection signal (blown fuse) is detected.		
		F18-13	PS20 (tray upper limit 1) which has been OFF is not turned ON within 10 seconds of upward movement started by turning ON of M19 (up drive 1). At this time, no abnormal detection signal is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Tray 2	F18-20	M20 (up drive 2) lock detection. An M20 abnormal detection signal is detected when M20 is ON.	The machine stops immediately and RL1 (main) is turned OFF.	M20 (up drive 2) DCDB (DC drive board) PRCB (printer control board) PS21 (tray upper limit 2) DCPS2 (DC power supply unit 2) Connector connection failure Tray trailing edge limit plate position error Paper stacking error Tray 2
		F18-21	PS21 (tray upper limit 2) which has been OFF is not turned ON within 10 seconds of upward movement started by turning ON of M20 (up drive 2). At this time, a trouble detection signal (24 V off) is detected.	The machine stops immediately and RL1 (main) is turned OFF. Error code is not displayed on operation panel. It is displayed only on data collection and list output. Message "Please load paper in tray 2." is displayed on operation panel because tray has not completed ascending.	
		F18-22	PS21 (tray upper limit 2) which has been OFF is not turned ON within specified time of upward movement started by turning ON of M20 (up drive 2). At this time, an abnormal detection signal (blown fuse) is detected.		
		F18-23	PS21 (tray upper limit 2) which has been OFF is not turned ON within specified time of upward movement started by turning ON of M20 (up drive 2). At this time, no abnormal detection signal is detected.		
	Tray 3	F18-30	M21 (up drive 3) lock detection. An M21 abnormal detection signal is detected when M21 is ON.	The machine stops immediately and RL1 (main) is turned OFF.	M21 (up drive 3) DCDB (DC drive board) PRCB (printer control board) PS22 (tray upper limit 3) Connector connection failure Tray trailing edge limit plate position error Paper stacking error Tray 3
		F18-31	PS22 (tray upper limit 3) which has been OFF is not turned ON within specified time of upward movement started by turning ON of M21 (up drive 3). At this time, an abnormal detection signal (24 V off) is detected.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. Message "Please load paper in tray 3." is displayed on operation panel because tray has not completed ascending.	
		F18-32	PS22 (tray upper limit 3) which has been OFF is not turned ON within specified time of upward movement started by turning ON of M21 (up drive 3). At this time, an abnormal detection signal (blown fuse) is detected.		
		F18-33	PS22 (tray upper limit 3) which has been OFF is not turned ON within specified time of upward movement started by turning ON of M21 (up drive 3). At this time, no abnormal detection signal is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
LCT	LCT	F18-40	M100 (LT up/down) lock detection. When M100 is ON, an M100 abnormal detection signal has been continuously detected for one second.	The machine stops immediately and RL1 (main) is turned OFF.	M100 (LT up/down) LTDB (LT drive board) PS101 (LT lower limit detection) PS109 (LT upper limit detection) DCPS2 (DC power supply unit 2) Connector connection failure
		F18-41	PS109 (LT upper limit detection) or PS101 (LT lower limit detection) which has been OFF is not turned ON within specified time of upward or downward movement started by turning ON of M100 (LT up/down). At this time, an abnormal detection signal (24 V off) is detected.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. Message "Please load paper in tray 4." is displayed on operation panel because tray has not completed ascending.	
		F18-42	PS109 (LT upper limit detection) or PS101 (LT lower limit detection) which has been OFF is not turned ON within specified time of upward or downward movement started by turning ON of M100 (LT up/down drive). At this time, an abnormal detection signal (blown fuse) is detected.		
		F18-43	PS109 (LT upper limit detection) or PS101 (LT lower limit detection) which has been OFF is not turned ON within specified time of upward or downward movement started by turning ON of M100 (LT up/down drive). At this time, no abnormal detection signal is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	By-pass feed	F18-51	PS23 (tray upper limit (by-pass)) or PS43 (tray lower limit (by-pass)) which has been OFF is not turned ON within specified time of upward or downward movement started by turning ON of M22 (up/down (by-pass)). At this time, an abnormal detection signal (24 V off) is detected.	Operation panel displays jam error (J10-01). It is reset by paper re-load. Error code is displayed on data collection and list output	M22 (up/down (by-pass)) DCDB (DC drive board) PRCB (printer control board) PS23 (tray upper limit (by-pass)) PS43 (tray lower limit (by-pass)) DCPS2 (DC power supply unit 2) Connector connection failure
		F18-52	PS23 (tray upper limit (by-pass)) or PS43 (tray lower limit (by-pass)) which has been OFF is not turned ON within 10 seconds of upward or downward movement started by turning ON of M22 (up/down (by-pass)). At this time, an abnormal detection signal (blown fuse) is detected.		
		F18-53	PS23 (tray upper limit (by-pass)) or PS43 (tray lower limit (by-pass)) which has been OFF is not turned ON within 10 seconds of upward or downward movement started by turning ON of M22 (up/down (by-pass)). At this time, no abnormal detection signal is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Wire cleaning abnormality	F21-01	<ul style="list-style-type: none"> When SW1 (main) has been ON and PS41 (charging wire cleaning pad HP) has been OFF, PS41 is not turned ON within 35 seconds of home position search operation (return) started by turning ON of M23 (charger cleaning). At this time, an abnormal detection signal (blown fuse) is not detected. PS41 is not turned OFF within specified time after start of reversal operation (return). At this time, an abnormal detection signal (blown fuse) is not detected. Check on excess over M23 operation time limit. PS42 (charging wire cleaning pad limit) is not turned ON within specified time after detection of turning OFF of PS41 (charging wire cleaning pad HP) at the start of reversal operation (return), or PS41 is not turned ON within specified time after turning ON of PS42. At this time, an abnormal detection signal (blown fuse) is not detected. 	The machine stops immediately and RL1 (main) is turned OFF.	M23 (charger cleaning) DCDB (DC drive board) PRCB (printer control board) PS41 (charging wire cleaning pad HP) PS42 (charging wire cleaning pad limit) Breaking of harness Connector connection failure
		F21-02	<ul style="list-style-type: none"> Check on blown fuse of M23 in PRCB. When SW1 (main) has been ON and PS41 (charging wire cleaning pad HP) has been OFF, PS41 is not turned ON within specified time of home position search operation (return) started by turning ON of M23. At this time, an abnormal detection signal (blown fuse) is detected. PS41 is not turned OFF within specified time after start of reversal operation (return). At this time, an abnormal detection signal (blown fuse) is detected. PS42 (charging wire cleaning pad limit) is not turned ON within specified time after detection of turning OFF of PS41 (charging wire cleaning pad HP) at the start of reversal operation (return), or PS41 is not turned ON within specified time after turning ON of PS42. At this time, an abnormal detection signal (blown fuse) is detected. 		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Wire cleaning abnormality	F21-03	M23 (charger cleaning) lock detection. A motor lock signal is detected during the cleaning pad moving from the PS42 (charging wire cleaning pad limit) side to the PS41 (charging wire cleaning pad HP) side. After retry, the fifth motor lock signal is detected.	The machine stops immediately and RL1 (main) is turned OFF.	M23 (charger cleaning) DCDB (DC drive board) PRCB (printer control board) PS41 (charging wire cleaning pad HP) PS42 (charging wire cleaning pad limit) Charge control plate cleaner
		F21-04	<ul style="list-style-type: none"> • Check on excess over M18 (transfer/separation cleaning) operation time limit. When SW1 (main) has been ON and PS11 (transfer/separation wire cleaning pad HP) has been OFF, PS11 is not turned ON within specified time of home position search operation (return) started by turning ON of M18. At this time, an abnormal detection signal (blown fuse) is not detected. • PS11 is not turned OFF within specified time after start of reversal operation (return). At this time, an abnormal detection signal (blown fuse) is not detected. • Check on excess over M18 (transfer/separation cleaning) operation time limit. PS12 (transfer/separation wire cleaning pad limit) is not turned ON within specified time after detection of turning OFF of PS11 (transfer/separation wire cleaning pad HP) at the start of reversal operation (return), or PS11 is not turned ON within specified time after turning ON of PS12. At this time, an abnormal detection signal (blown fuse) is not detected. 		M18 (transfer/separation cleaning) ADUSDB (ADU stand drive board) PS11 (transfer/separation wire cleaning pad HP) PS12 (transfer/separation wire cleaning pad limit) Breaking of harness Connector connection failure

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Wire cleaning abnormality	F21-05	<ul style="list-style-type: none"> • Check on blown fuse of M18 (transfer/separation cleaning) in ADUSDB. When SW1 (main) has been ON and PS11 (transfer/separation wire cleaning pad HP) has been OFF, PS11 is not turned ON within specified time of home position search operation (return) started by turning ON of M18. At this time, an abnormal detection signal (blown fuse) is detected. • PS11 is not turned OFF within specified time after start of reversal operation (return). At this time, an abnormal detection signal (blown fuse) is detected. • PS12 (transfer/separation wire cleaning pad limit) is not turned ON within specified time after detection of turning OFF of PS11 (transfer/separation wire cleaning pad HP) at the start of reversal operation (return), or PS11 is not turned ON within specified time after turning ON of PS12. At this time, an abnormal detection signal (blown fuse) is detected. 	The machine stops immediately and RL1 (main) is turned OFF.	M18 (transfer/separation cleaning) ADUSDB (ADU stand drive board) PS11 (transfer/separation wire cleaning pad HP) PS12 (transfer/separation wire cleaning pad limit) Breaking of harness Connector connection failure Transfer/separation wire cleaning pad
		F21-06	M18 (transfer/separation cleaning) lock detection. A motor lock signal is detected during movement from the PS12 (transfer/separation wire cleaning pad limit) side to the PS11 (transfer/separation wire cleaning pad HP) side. After retry, the fifth motor lock signal is detected.		
	Motor abnormality	F23-01	Check on M15 (toner supply 2) rotation speed abnormality signal. An abnormal detection signal is detected two consecutive times (the first signal is ignored) in 7 seconds after turning ON of M15.		M15 (toner supply 2) PRCB (printer control board)
		F23-02	Check on M3 (developing) rotation speed abnormality signal. Because an abnormal detection signal had been detected one second after turning ON of M3, M3 was turned OFF for 0.5 second and ON again. One second later, an abnormal detection signal was detected again.		M3 (developing) PRCB (printer control board)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Motor abnormality	F23-03	M14 (blade) lock detection. An M14 abnormal detection signal (excessive current) is detected.	The machine stops immediately and turns OFF RL1 (main).	M2 (drum) M14 (blade) DCDB (DC drive board) PRCB (printer control board) PS30 (blade 1) PS31 (blade 2) DCPS2 (DC power supply unit 2) Breaking of harness Connector connection failure
		F23-04	Check on M14 (blade) movement incompleteness and 24 V power supply. The drum READY1 signal (ready) is not detected within specified time after turning ON of M2 (drum), or the drum READY1 signal (not ready) is not detected within specified time after turning OFF of M2. At this time, an abnormal detection signal (24 V off) is detected.		
		F23-05	Check on blown fuse of M14 (blade) in PRCB. The drum READY1 signal (ready) is not detected within specified time after turning ON of M2 (drum), or the drum READY1 signal (not ready) is not detected within specified time after turning OFF of M2. At this time, an M14 abnormal detection signal (blown fuse) is detected.		
		F23-06	Check on M14 (blade) movement incompleteness. The drum READY1 signal (ready) is not detected within specified time after turning ON of M2 (drum), or the drum READY1 signal (not ready) is not detected within specified time after turning OFF of M2. At this time, no abnormal detection signal is detected.		
		F23-07	Check on M14 (blade) movement in completion and 24 V power supply. The blade READY signal (ready) is not detected within specified time after turning ON of the blade replacement signal, or the blade READY signal (not ready) is not detected within specified time after turning OFF of the blade replacement signal. At this time, an abnormal detection signal (24 V off) is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Motor abnormality	F23-08	The blade READY signal (ready) is not detected within 5 seconds after turning ON of the blade replacement signal, or the blade READY signal (not ready) is not detected within 5 seconds after turning OFF of the blade replacement signal. At this time, an M14 (blade) abnormal detection signal (blown fuse) is detected.	The machine stops immediately and RL1 (main) is turned OFF.	M2 (drum) M14 (blade) DCDB (DC drive board) PRCB (printer control board) PS30 (blade 1) PS31 (blade 2) DCPS2 (DC power supply unit 2) Breaking of harness Connector connection failure
		F23-09	Check on M14 (blade) movement incompleteness. The blade READY signal (ready) is not detected within specified time after turning ON of the blade replacement signal, or the blade READY signal (not ready) is not detected within specified time after turning OFF of the cleaning blade replacement signal. At this time, no abnormal detection signal is detected.		M14 (blade) DCDB (DC drive board) PRCB (printer control board) PS30 (blade 1) PS31 (blade 2) Breaking of harness Connector connection failure
		F23-10	Check on M2 (drum) start operation incompleteness. The drum READY2 signal (ready) is not detected within specified time after turning ON of M2.		M2 (drum) PRCB (printer control board) Connector connection failure
		F23-11	Check on blown fuse of M11 (toner supply 1) in PRCB. An abnormal detection signal (blown fuse) is detected when M11 is turned ON.		M11 (toner supply 1) DCDB (DC drive board) Breaking of harness
		F24-01	At specified time after turning ON of SW1 (main), TH5 (drum temperature) detected temperature is -3°C or lower. One minute after this, the drum temperature is -3°C or lower.		DPSB (drum potential sensor board) PRCB (printer control board) TH5 (drum temperature)
		F24-02	When SW1 (main) is ON with fixing temperature at 50°C or lower, TH5 (drum temperature) detected temperature is 52°C or higher. At specified time after this, the detected temperature is 52°C or higher.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	High voltage power supply abnormality	F28-01	Charging leakage detection. The charging ON/OFF operation has been performed five consecutive times since the charging abnormal detection signal was detected at start of charging.	If there is a paper in copying process when this trouble occurs, the machine stops after completion of copied paper ejection. RL1 (main) is turned OFF.	HV1 (high voltage unit1) Power supply connecting point of charging corona unit
		F28-02	Transfer leakage detection. The transfer ON/OFF operation has been performed five consecutive times since the transfer trouble detection signal was detected at start of transfer.		HV2 (high voltage unit 2) Power supply connecting point of transfer/separation corona unit
		F28-03	Separation leakage detection. The separation ON/OFF operation has been performed five consecutive times since the separation trouble detection signal was detected at start of separation.		
		F28-04	An HV2 (high voltage unit 2) abnormal detection signal (blown 24V fuse) is detected.		TCSB (toner control sensor board) PRCB (printer control board)
	Process abnormality	F29-01	The Dmax sensor is dirty during Dmax correction. If this trouble is detected ten successive times, the corresponding service code is displayed.	The machine stops immediately and RL1 (main) is turned OFF.	HV2 (high voltage unit 2) Power supply connecting point of transfer/separation corona unit ADUSDB (ADU stand drive board) Breaking of harness

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main Unit	Process abnormality	F29-02	Dmax correction incompleteness. The rotation speed of the developing sleeve reached the maximum value during Dmax correction.	Error code is not displayed on operation panel. It is displayed only on data collection, list output. Main body control is performed using previous data.	TCSB (toner control sensor board) PRCB (printer control board) M3 (developing) Write unit ICB (image control board) ICB IFB (ICB I/F board)
		F29-03	Dmax sensor output abnormality. The control patch is not output during Dmax correction. (No output from the Dmax sensor)		
		F29-04	Sensor dirt correction incompleteness. Dirt correction failure of the γ sensor during γ adjustment. If E29-4 or E29-7 is detected ten successive times, the error code is displayed.	The machine stops immediately and RL1 (main) is turned OFF.	
		F29-05	γ correction data error. The control patch is not output during γ correction. (No output from the γ sensor)	Error code is not displayed on operation panel. It is displayed only on data collection and list output. Main body control is performed using previous data.	
		F29-06	γ correction data error. A recurrence error occurred when carry out γ curve for γ correction.	The machine stops immediately and RL1 (main) is turned OFF.	
		F29-07	Sensor dirt correction incompleteness. Dirt correction failure of the γ sensor during dot diameter adjustment. If E29-4 or E29-7 is detected ten successive times, the corresponding error code is displayed.	The machine stops immediately and RL1 (main) is turned OFF.	
		F29-08	Correction abnormality. Dot diameter correction ended with an abnormal value.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. Main body control is performed using previous data.	
		F29-09	DPS (drum potential sensor) output abnormality. A drum surface potential of over 100 V was detected 5 or more times when a 0 V check was performed by drum potential sensor. If this trouble is detected five successive times, the error code is displayed.	The machine stops immediately and RL1 (main) is turned OFF.	DPSB (drum potential sensor board) PRCB (printer control board) DPS (drum potential sensor) Connector connection failure

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main Unit	Process abnormality	F29-10	DPS (drum potential sensor) output abnormality. The control patch is not output be-cause VI exceeds 350V during drum potential correction. If this trouble is detected 5 successive times, the error code is displayed.	The machine stops immediately and RL1 (main) is turned OFF.	DPSB (drum potential sensor board) PRCB (printer control board) DPS (drum potential sensor) Connector connection failure
		F29-11	Data error. Drum potential correction is not completed if it is made 10 or more times. If this trouble is detected 5 successive times, the error code is displayed.		
		F29-12	Automatic adjustment monitor value abnormality. Automatic adjustment of the transfer current is not completed.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. Main body control is performed using previous data.	HV1 (high voltage unit 1) HV2 (high voltage unit 2) PRCB (printer control board) ADUSDB (ADU stand drive board)
		F29-13	Automatic adjustment monitor value abnormality. Automatic adjustment of the separation (AC) current is not completed.		
		F29-14	Automatic adjustment monitor value abnormality. Automatic adjustment of the separation (DC) current is not completed.		
		F29-15	Automatic adjustment monitor value abnormality. Automatic adjustment of the developing bias (DC) current is not completed.		
	Fan abnormality	F32-01	Check on FM2 (developing suction) rotation and 24 V power supply. The FM2 (developing suction) EM signal was abnormal at specified time after turning FM2 ON. At specified time after turning FM2 OFF and ON again, the FM2 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.	The machine stops immediately and RL1 (main) is turned OFF.	ACDB (AC drive board) FM2 (developing suction) DCPS2 (DC power supply unit 2) Harness short circuit with the ground Connector connection failure
		F32-02	Check on blown fuse of FM2 (developing suction) in ACDB. The FM2 EM signal was abnormal at specified time after turning FM2 ON. At specified time after turning FM2 OFF and ON again, the FM2 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F32-03	Check on FM2 (developing suction) rotation. The FM2 (developing suction) EM signal was abnormal at specified time after turning FM2 ON. At specified time after turning FM2 OFF and ON again, the FM2 EM signal is still abnormal and an abnormal detection signal (24V off/blown fuse) is not detected.	The machine stops immediately and RL1 (main) is turned OFF.	ACDB (AC drive board) FM2 (developing suction) DCPS2 (DC power supply unit 2) Harness short circuit with the ground Connector connection failure
		F32-04	Check on FM1 (paper exit) rotation and 24V power supply. The FM1 EM signal was abnormal at specified time after turning ON of FM1. At specified time after turning FM1 OFF and ON again, the FM1 EM signal is still abnormal and an abnormal detection signal (24V off) is detected.		ADUSDB (ADU stand drive board) FM1 (paper exit) DCPS2 (DC power supply unit 2) Connector connection failure
		F32-05	Check on blown fuse of FM1 (paper exit) in ADUSB. The FM1 EM signal was abnormal at specified time after turning ON of FM1. At specified time after turning FM1 OFF and ON again, the FM1 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		
		F32-06	Check on FM1 (paper exit) rotation. The FM1 EM signal was abnormal at specified time after turning ON of FM1. At specified time after turning FM1 OFF and ON again, the FM1 EM signal is still abnormal and an abnormal detection signal (24V off/blown fuse) is not detected.		
		F32-07	FM1 (paper exit) EM signal becomes faulty after completion of printing.	Error code is not displayed on operation panel. It is displayed only on data collection and list output.	

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	ADU stand motor abnormality	F33-01	M12 (registration) rotation speed abnormality. An abnormal detection signal is detected 2 consecutive times (the first signal is ignored) at specified time after turning ON of M12.	The machine stops immediately and RL1 (main) is turned OFF. If there is a paper in copying process when this trouble occurs, the machine stops after completion of copied paper ejection. RL1 (main) is turned OFF.	M12 (registration) Connector connection failure
		F33-02	Check on blown fuse of M5 (paper reverse exit) in ADUSDB. When M5 which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected.		M5 (paper reverse exit) ADUSDB (ADU stand drive board) Harness short circuit with the ground Connector connection failure
		F33-03	Check on blown fuse of M9 (transfer) in ADUSDB. When M9 which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected.		M9 (transfer) ADUSDB (ADU stand drive board) Harness short circuit with the ground Connector connection failure
		F33-04	Check on blown fuse of M10 (paper exit) in PRCB. When M10 which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected.		M10 (paper exit) PRCB (printer control board) Harness short circuit with the ground
		F33-05	Check on blown fuse of M16 (web drive) in PRCB and 24 V power supply. When M16 which has been OFF is turned ON, an abnormal detection signal (blown fuse/24 V off) is detected.		DCPS2 (DC power supply unit 2)
		F33-06	Check on blown fuse of M16 (web drive) in PRCB. When M16 which has been OFF is turned ON, abnormal detection signal (24 V off) detected blown fuse in normal condition.		M16 (Web drive) PRCB (printer control board)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Too high fixing temperature abnormality	F34-01	TH1 (fixing temperature 1) high temperature detection (by software). TH1 has detected 210°C or more five consecutive times at intervals of 1 second.	The machine stops immediately. RL1 (main) is turned OFF.	PRCB (printer control board) ACDB (AC drive board) L2 (fixing heater lamp 1) L3 (fixing heater lamp 2) L4 (fixing heater lamp 3) TH1 (fixing temperature 1) TH2 (fixing temperature 2) TH3 (fixing temperature 3) TH4 (fixing temperature 4)
		F34-02	TH3 (fixing temperature 3) high temperature detection (by software). TH3 has detected 230°C or more five consecutive times at intervals of 1 second.		
		F34-03	TH1 (fixing temperature 1) high temperature detection (by hardware). An abnormal state of fixing abnormality detection signal 1 is detected.		
		F34-04	TH3 (fixing temperature 3) high temperature detection (by hardware). An abnormal state of fixing abnormality detection signal 4 is detected.		
	Too low fixing temperature abnormality	F35-01	THF1 (fixing temperature 1) low temperature detection (by software). TH1 does not detect 50°C or higher when specified time has passed since fixing ON control started at SW1 (main) ON.		
		F35-02	TH3 (fixing temperature 3) low temperature detection (by software). TH3 does not detect 50°C or higher when specified time has passed since fixing ON control started at SW1 (main) ON.		
	Fixing sensor abnormality	F36-01	TH1 (fixing temperature 1) high temperature detection (for a long time by software). TH1 has detected 200°C or higher 30 consecutive times at intervals of 1 second.		
		F36-02	TH3 (fixing temperature 3) high temperature detection (for a long time by software). TH3 (fixing temperature 3) has detected 220°C or higher 30 consecutive times at intervals of 1 second.		
		F36-03	TH1 (fixing temperature 1) low temperature detection (by hardware). Underheating (-6°C or less) was detected for TH1 output voltage by the comparator circuit.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fixing sensor abnormality	F36-04	TH3 (fixing temperature 3) low temperature detection (by hardware). Underheating (-6°C or less) was detected for TH3 output voltage by the comparator circuit.	The machine stops immediately. RL1 (main) is turned OFF.	PRCB (printer control board) ACDB (AC drive board) L2 (fixing heater lamp 1) L3 (fixing heater lamp 2) L4 (fixing heater lamp 3) TH1 (fixing temperature 1) TH2 (fixing temperature 2) TH3 (fixing temperature 3) TH4 (fixing temperature 4)
		F36-05	TH2 (fixing temperature 2) abnormality detection (by hardware). Underheating (-6°C or less) or overheating (240.5°C or more) was detected for TH2 output voltage by the comparator circuit.		
		F36-06	TH4 (fixing temperature 4) abnormality detection (by hardware). Underheating (-6°C or less) or overheating (240.5°C or more) was detected for TH4 output voltage by the comparator circuit.		
	Scanner abnormality	F41-01	Check on excess over M13 (scanner drive) movement time limit and 24V power supply. PS5 (scanner HP) or PS7 (ADF brake) is not turned ON within specified time after start of HP search operation, or an M13 abnormal detection signal (24V off) is detected.		SCDB (scanner drive board) M13 (scanner drive) PS4 (scanner return) PS5 (scanner HP) PS6 (original HP) PS7 (ADF brake) DCPS2 (DC power supply unit 2) Harness short circuit with the ground Connector connection failure
		F41-02	Check on blown fuse of M13 (scanner drive) in SCDB. PS5 (scanner HP) or PS7 (ADF brake) is not turned ON within specified time after start of HP search operation, or an M13 abnormal detection signal (blown fuse) is detected.		
		F41-03	Check on excess over M13 (scanner drive) movement time limit. PS5 (scanner HP) or PS7 (ADF brake) is not turned ON within specified time after start of HP search operation, or an M13 abnormal detection signal (24 V off/blown fuse) is not detected.		
		F41-04	Check on excess over M13 (scanner drive) movement time limit and 24V power supply. During HP search operation, PS5 (scanner HP) is not turned ON within specified time after turning ON of PS7 (ADF brake). An M13 abnormal detection signal (24V off) is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Scanner abnormality	F41-05	Check on blown fuse of M13 (scanner drive) in SCDB. During HP search operation, PS5 (scanner HP) is not turned ON within specified time after turning ON of PS7 (ADF brake). An M13 abnormal detection signal (blown fuse) is detected.	The machine stops immediately. RL1 (main) is turned OFF.	SCDB (scanner drive board) M13 (scanner drive) PS4 (scanner return) PS5 (scanner HP) PS6 (original HP) PS7 (ADF brake) DCPS2 (DC power supply unit 2) Harness short circuit with the ground Connector connection failure
		F41-06	Check on excess over M13 (scanner drive) movement time limit. During HP search operation, PS5 (scanner HP) is not turned ON within specified time after turning ON of PS7 (ADF brake). An M13 abnormal detection signal (24 V off/blown fuse) is not detected.		
		F41-09	After original scanning, PS7 (ADF brake) is turned ON before PS5 (scanner HP) is turned ON.		
	Write abnormality	F41-10	Check on M17 (polygon) rotation speed abnormality and 24V power supply. The M17 lock signal is not detected within specified time after an attempt is made to change the M17 speed. The abnormal detection signal (24V off) is detected.		PMDB (polygon motor drive board) PRCB (printer control board) M17 (polygon) Connector connection failure
		F41-11	Check on M17 (polygon) rotation speed abnormality. The M17 lock signal is not detected within specified time after an attempt is made to change the M17 speed. The abnormal detection signal (24V off) is not detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F42-01	Check on FM 7 (scanner cooling) rotation and 24 V power supply. The FM7 EM signal was abnormal at specified time after turning ON of FM7. At specified time after turning FM7 OFF and ON again, the FM7 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.	The machine stops immediately. RL1 (main) is turned OFF.	SCDB (scanner drive board) FM7 (scanner cooling) DCPS2 (DC power supply unit 2) Harness short circuit with the ground Connector connection failure
		F42-02	Check on blown fuse of FM7 (scanner cooling) in SCDB. The FM7 EM signal was abnormal at specified time after turning ON of FM7. At specified time after turning FM7 OFF and ON again, the FM7 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		
		F42-03	Check on FM7 (scanner cooling) rotation. The FM7 EM signal was abnormal at specified time after turning ON of FM7. At specified time after turning FM7 OFF and ON again, the FM7 EM signal is still abnormal and an abnormal detection signal (24 V off/blown fuse) is not detected.		
		F42-04	Check on FM5 (write section cooling 1) rotation and 24 V power supply. The FM5 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM5/8 OFF and ON again, the FM5 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.		FM5 (write section cooling 1) ICB (image control board) DCPS2 (DC power supply unit 2) ACDB (AC drive board) Harness short circuit with the ground
		F42-05	Check on blown fuse of FM5 (write section cooling 1) in ACDB. The FM5 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM5 OFF and ON again, the FM5 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F42-06	Check on FM5 (write section cooling 1) rotation. The FM5 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM5 OFF and ON again, the FM5 EM signal is still abnormal and an abnormal detection signal (24 V off/blown fuse) is not detected.	The machine stops immediately. RL1 (main) is turned OFF.	FM5 (write section cooling 1) FM8 (write section cooling 2) ACDB (AC drive board) Harness short circuit with the ground Connector connection failure
		F42-07	At the start of copying, an FM5 (write section cooling 1) abnormal detection signal is detected.		
		F42-08	Check on FM8 (write section cooling 2) rotation and 24 V power supply. The FM8 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM8 OFF and ON again, the FM8 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.		DCPS2 (DC power supply unit 2) ACDB (AC drive board) FM5 (write section cooling 1) FM8 (write section cooling 2) Harness short circuit with the ground Connector connection failure
		F42-09	Check of blown fuse of FM8 (write section cooling 2) in ACDB. The FM8 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM8 OFF and ON again, the FM8 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		
		F42-10	Check on FM8 (write section cooling 2) rotation. The FM8 EM signal was abnormal at specified time after turning ON of FM5/8 (write section cooling 1/2). At specified time after turning FM8 OFF and ON again, the FM8 EM signal is still abnormal and an abnormal detection signal (24 V off/blown fuse) is not detected.		
		F42-11	At the start of copying, an FM8 (write section cooling 2) abnormal detection signal is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F42-12	Check on FM12 (main body cooling 4) rotation and 24 V power supply. The FM12 EM signal was abnormal at specified time after turning ON of FM12. At specified time after turning FM12 OFF and ON again, the FM12 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.	The machine stops immediately. RL1 (main) is turned OFF.	DCPS2 (DC power supply unit 2) ACDB (AC drive board) FM12 (main body cooling 4) Breaking of harness Connector connection failure
		F42-13	Check on blown fuse of FM12 (main body cooling 4) in ACDB. The FM12 EM signal was abnormal at specified time after turning ON of FM12. At specified time after turning FM12 OFF and ON again, the FM12 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		
		F42-14	Check on FM12 (main body cooling 4) rotation. The FM12 EM signal was abnormal at specified time after turning ON of FM12. At specified time after turning FM12 OFF and ON again, the FM12 EM signal is still abnormal and an abnormal detection signal (24 V off/blown fuse) is not detected.		
		F42-16	Check on FM9 (polygon cooling) rotation and 24 V power supply. The FM9 EM signal was abnormal at specified time after turning ON of FM9. At specified time after turning FM9 OFF and ON again, the FM9 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.		DCPS2 (DC power supply unit 2) ACDB (AC drive board) FM9 (polygon cooling) Breaking of harness Connector connection failure
		F42-17	Check on blown fuse of FM9 (polygon cooling) in ACDB. The FM9 EM signal was abnormal at specified time after turning ON of FM9. At specified time after turning FM9 OFF and ON again, the FM9 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F42-18	During image write, APC cannot be performed for sub-scanning beam correction. The 12 VDC power for driving the laser is not supplied. The laser does not turn ON due to defective laser, or MPC value is different. The index sensor cannot detect the laser because the polygon mirror does not rotate, the index sensor is displaced, or the index sensor is defective.	The machine stops immediately. RL1 (main) is turned OFF.	DCPS2 (DC power supply unit 2) ACDB (AC drive board) FM9 (polygon cooling) Breaking of harness Connector connection failure
		F42-19	At the start of copying, an FM9 (polygon cooling) abnormal detection signal is detected.		
	Image control abnormality	E46-01	During image write, APC cannot be performed for sub-scanning beam correction. The 12 VDC power for driving the laser is not supplied. The laser does not turn ON due to defective laser, or MPC value is different. The index sensor cannot detect the laser because the polygon mirror does not rotate, the index sensor is displaced, or the index sensor is defective.	If copy operation is being performed, the machine stops after paper ejection. The RL1 (main) is turned OFF.	Write section ICB (image control board) power connector
		E46-02	Illegal address of FIFO for scanner. During image read, image data compression is not completed normally.		ICB (image control board) Damage to gate array
		E46-03	Illegal address of FIFO for printer. During image write, image data decompression is not completed normally.		
		E46-05	The FIFO of the compression/expansion chip caused an error interrupt.		
		E46-06	Decompression error.		
		E46-08	When APC is performed, the index sensor output does not change.		Write section ICB (image control board) power connector
		E46-12	Compression of the read image and decompression in the page memory are not completed within the specified time after negation of SVV.		ICB (image control board)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Image control abnormality	E46-13	During image read, image data compression from the scanner to the memory is not completed within the specified time. Image data decompression from the scanner to the page memory is not completed within the specified time. SVV is not detected within the specified time.	If copy operation is being performed, the machine stops after paper ejection. The RL1 (main) is turned OFF.	PRCB (printer control board) ICB (image control board) RADF
		E46-14	During image write, image data expansion from the memory to the printer is not completed within the specified time. Image data output from the page memory to the printer is not completed within the specified time. PVV is not detected within the specified time.		PRCB (printer control board) ICB (image control board)
		E46-15	During image write, improper processing was performed. For example, the decompression device was accessed although there was no resource.		ICB (image control board) ICB program
		E46-16	During image read, improper processing was performed. For example, the compression device was accessed although there was no resource.		
		E46-17	During image processing, a filter coefficient could not be generated properly.		
		E46-19	During access to the memory device, a software error was detected.		
		E46-21	Decompression from the memory to the page memory is not completed within the specified time. Compression from the page memory to the memory is not completed within the specified time. Decompression from the memory to the page memory is not completed within the specified time. Compressed data transfer between memories is not completed within the specified time.		PRCB (printer control board) ICB program

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Image control abnormality	E46-23	During image read, SVV is not turned OFF within the specified time and therefore preparation for next page scanning cannot be started.	If copy operation is being performed, the machine stops after paper ejection. The RL1 (main) is turned OFF.	ICB (image control board)
		E46-24	Shading correction error (GA error)		ICB (image control board) ICB program
		E46-25	AOC/AGC error <ul style="list-style-type: none"> • The light blocking cover and lens cover are removed from the read section. • The A/D conversion board connector is disconnected. • The power cable of A/D conversion board is disconnected. • The IC protector on the A/D conversion board is blown out. • The exposure lamp intensity is excessive. • The exposure lamp does not light. 		ADB (A/D conversion board) L1 (exposure lamp)
		E46-26	Correction data saved on a resolution basis is not found.	Error code is not displayed on operation panel. It is displayed only on data collection and list output.	ICB (image control board)
		E46-27	The density correction g curve cannot be generated properly.		
		E46-29	Calibration start error.	If copy operation is being performed, the machine stops after paper ejection.	ICB (image control board) ICB program
		E46-30	Calibration end error		
		E46-31	An attempt was made to perform APC initial sampling before completion of MPC.		
		E46-32	An attempt was made to perform MPC during APC.	The RL1 (main) is turned OFF.	
		E46-33	An attempt was made to perform subscan beam correction before completion of APC or MPC.		
		E46-34	An attempt was made to perform subscan beam interval correction although the image write clock was abnormal.		
		E46-35	Dual page memory area error Due to the image area abnormality on the memory, image is not decompressed on the memory		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Image control abnormality	E46-36	PVV is ON before initial APC start processing ends	If copy operation is being performed, the machine stops after paper ejection.	M17 (polygon) ICB (image control board) PRCB (printer control board) PRCB program
		E46-40	Hard disk initialize fault or poor connection of connector.	The machine stops immediately and RL1 (main) is turned OFF.	ICB (image control board) ICB program HDD (Hard disk drive)
		E46-41	Job information could not be stored on the hard disk.		
		E46-42	A route could not be opened during hard disk job automatic deletion.		
		E46-43	Hard disk access fault, hard disk fault, or poor connection of connector.		ICB (image control board) ICB program HDD (hard disk drive)
		E46-50	Communication error was detected during tandem operation.		ICB (Image Control Board) ICB program Tandemcable
		E46-51	Communication error was detected while tandem image data is transferring.		
		E46-60	Adjustment of the sub-scan beam interval failed for the following reason: • Defective index sensor • M24 (laser correction) driving failure • Abnormal 12 VDC power supply • M17 (polygon) driving failure	Error code is not displayed on operation panel. It is displayed only on data collection and list output.	Write section
		E46-61	Scanning started before completion of original auto skew correction. (Auto skew correction was not in time.)		DFCB (RADF control board) PS311(original mis-centering detection 1) PS312(original mis-centering detection 2)
		E46-62	Printing started before correction of auto paper mis-centering. (Auto mis-centering correction was not in time.)		PS1(papermis-centering)
		E46-63	AGC was retried because of reduction in exposure lamp intensity, but no error occurred.		L1(exposure lamp)
		E46-64	The PWM g curve could not be generated properly.		TCSB (toner control sensor board)
		E46-66	Shift amount abnormality at time of repeating (When setting the paper width manually or automatic). The shift amount is negative at time of repeating.		ICB program

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Image control abnormality	E46-80	The message queue was insufficient or destroyed.	If copy operation is being performed, the machine stops after paper ejection.	ICB (image control board)
		E46-81	The parameter value is too large.		
		E46-82	The ID of the message queue source task is undefined.		
		E46-83	The message reception event is undefined.		
		E46-90	The access to the memory is illegal.		ICB (image control board) DIMM contact failure
		E46-91	The header read address is illegal.		ICB (image control board)
	Communication abnormality	E49-00	Video I/F board failure	The machine stops immediately. RL1 (main) is turned OFF.	Video I/F Video I/F program
		E49-01	ICB(Image control board) haven't heard from Video I/F board recently.		Video I/F
		E49-02	DMA(Direct Memory Access) transfer failure.		
		E50-01	Check on I/O initial communication in PRCB. Main unit drive serial input error 1. Serial data is not received from the main body drive section within specified time after reception of power-on ACK.		PRCB (printer control board)
		E50-02	Main unit drive serial input error 2. Serial data is not received from the main body drive section within specified time after reception of power-on ACK.		
		E50-03	Main unit drive serial input error 3. Serial data is not received from the main body drive section within specified time after reception of power-on ACK.		
		E50-04	Main unit drive serial input error 4. Serial data is not received from the main body drive section within specified time after reception of power-on ACK.		
		E50-05	Check on communication abnormality among boards related with printer engine. Drive board communication reception error detection fault. A reception error occurred during reception of drive board serial data, or a data checksum error or ID information error occurred four consecutive times although a resent request had been issued three times.		PRCB (printer control board) Drive boards Connector connection failure

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Communication abnormality	E50-10	Check on initial communication between ICB and PRCB. Image processing board communication error. Initial data is not received from ICB (image control board) within specified time after power-on.	The machine stops immediately. RL1 (main) is turned OFF.	PRCB (printer control board) ICB (image control board) ICB IFB (ICB I/F board) Connector connection failure
		E50-11	Check on communication abnormality between ICB and PRCB. Image control board communication serial reception error detection fault.		ICB (image control board)
	Fan abnormality	F52-01	Check on FM3/4 (main body cooling 1/2) rotation and 24V power supply. The FM3 (main body cooling 1) EM signal and FM4 (main body cooling 2) EM signal were abnormal at specified time after turning ON of FM3 and FM4. At specified time after turning FM3 and FM4 OFF and ON again, the FM3 EM signal and FM4 EM signal are still abnormal and an abnormal detection signal (24 V off) is detected.		ACDB (AC drive board) FM3 (main body cooling 1) FM4 (main body cooling 2) DCPS2 (DC power supply unit 2)
		F52-02	Check on FM3/4 (main body cooling 1/2) rotation. The FM3 (main body cooling 1) EM signal and FM4 (main body cooling 2) EM signal were abnormal at specified time after turning ON of FM3 and FM4. At specified time after turning FM3 and FM4 OFF and ON again, the FM3 EM signal and FM4 EM signal are still abnormal and an abnormal detection signal (24 V off) is not detected.		ACDB (AC drive board) FM3 (main body cooling 1) FM4 (main body cooling 2) PRCB (printer control board) Connector connection failure
		F52-03	Check on blown fuse of FM3 (main body cooling 1) ACDB. The FM3 EM signal was abnormal at specified time after turning ON of FM3. At specified time after turning FM3 OFF and ON again, the FM3 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		ACDB (AC drive board) FM3 (main body cooling 1) Harness short circuit with the ground
		F52-04	Check on FM3 (main body cooling 1) rotation. The FM3 EM signal was abnormal at specified time after turning ON of FM3. At specified time after turning FM3 OFF and ON again, the FM3 EM signal is still abnormal and an abnormal detection signal (blown fuse) is not detected.		ACDB (AC drive board) FM3 (main body cooling 1) Connector connection failure

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Fan abnormality	F52-05	Check on blown fuse of FM4 (main body cooling 2) in ACDB. The FM4 EM signal was abnormal at specified time after turning ON of FM4. At specified time after turning FM4 OFF and ON again, the FM4 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.	The machine stops immediately. RL1 (main) is turned OFF.	ACDB (AC drive board) FM4 (main body cooling 2) Harness short circuit with the ground
		F52-06	Check on FM4 (main body cooling 2) rotation. The FM4 EM signal was abnormal at specified time after turning ON of FM4. At specified time after turning FM4 OFF and ON again, the FM4 EM signal is still abnormal and an abnormal detection signal (blown fuse) is not detected.		
		F52-07	Check on FM6 (main body cooling 3) rotation and 24V power supply. The FM6 EM signal was abnormal at specified time after turning ON of FM6. At specified time after turning FM6 OFF and ON again, the FM6 EM signal is still abnormal and an abnormal detection signal (24V off) is detected.		ACDB (AC drive board) FM6 (main body cooling 3) Harness short circuit with the ground Connector connection failure DCPS2 (DC power supply unit 2)
		F52-08	Check on blown fuse of FM6 (main body cooling 3) in ACDB. The FM6 EM signal was abnormal at specified time after turning ON of FM6. At specified time after turning FM6 OFF and ON again, the FM6 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		
		F52-09	Check on FM6 (main body cooling 3) rotation. The FM6 EM signal was abnormal at specified time after turning ON of FM6. At specified time after turning FM6 OFF and ON again, the FM6 EM signal is still abnormal and an abnormal detection signal (24V off/blown fuse) is not detected.		
		F52-10	At the start of copying, an FM3 (main body cooling 1) or FM4 (main body cooling 2) abnormal detection signal is detected.		ACDB (AC drive board) FM3 (main body cooling 1) FM4 (main body cooling 2)
		F52-11	At the start of copying, an FM6 (main body cooling 3) abnormal detection signal is detected.		ACDB (AC drive board) FM6 (main body cooling 3)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Motor abnormality	F53-01	Check on M1 (main) rotation speed abnormality. An abnormal detection signal has been detected two consecutive times (one signal is ignored) at specified time after turning ON of M1.	The machine stops immediately. RL1 (main) is turned OFF.	M1 (main)
	Counter abnormality	F53-02	Check on 24V power supply for total counter. When C (T) (total counter) which has been OFF is turned ON, an abnormal detection signal (blown fuse/ 24 V off) is detected.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. However, the counter does not function.	ACDB (AC drive board) C (T) (total counter) DCPS2 (DC power supply unit 2)
		F53-03	Check on blown fuse of total counter in ACDB. When C (T) (total counter) which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected. An abnormal detection signal (24 V off) is not detected.		
		F53-04	Check on 24V power supply for key counter. When C (K) (key counter) which has been OFF is turned ON, an abnormal detection signal (blown fuse/ 24 V off) is detected.		ACDB (AC drive board) C (K) (key counter) DCPS2 (DC power supply unit 2)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Power supply abnormality	F53-05	Check on blown fuse of key counter in ACDB. When C (K) (key counter) which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected. An abnormal detection signal (24V off) is not detected.	Error code is not displayed on operation panel. It is displayed only on data collection and list output. However, the counter does not function	ACDB (AC drive board) C (K) (key counter) DCPS2 (DC power supply unit 2)
		F53-06	Check on blown fuse of 12V in ACDB. During serial initial communication, a 12 V blow fuse signal (AC drive) is detected.	The machine stops immediately. RL1 (main) is turned OFF.	PRCB (printer control board) ACDB (AC drive board) DCPS2 (DC power supply unit 2) Connector connection failure
		F53-07	Check on blown fuse of 5V in ACDB. During serial initial communication, a 5 V blow fuse signal (AC drive) is detected.		
		F53-08	Check on 12V power supply in PRCB. A 12V abnormal detection signal is detected on PRCB (printer control board).		
		F53-11	Check on 24V power supply for SD/MC in PRCB. An abnormal detection signal (solenoid/clutch blown fuse) is detected at the time of start. An abnormal detection signal (24V off) is detected.		Solenoids Clutches PRCB (printer control board) Harness short circuit with the ground
		F53-12	Check on blown fuse of SD/MC in PRCB. An abnormal detection signal (solenoid/clutch blown fuse) is detected at the time of start. An abnormal detection signal (24V off) is not detected.		
	Operation panel abnormality	E56-02	Check on initial communication between ICB and OB1. Communication between the ICB (image control board) and OB1 (operation board 1) does not start within specified time after SW1 (main) is turned ON.	Operation panel does not display normally.	ICB (image control board) OB1 (operation board 1) Connector connection failure
		F56-11	When SW1 (main) was turned ON, area which had not been written by ISW was detected in the operation control program (O1).		O1 program
		F56-12	When SW1 (main) was turned ON, area which had not been written by ISW was detected in the operation control program (O2).		O2 program
		F56-13	When SW1 (main) was turned ON, area which had not been written by ISW was detected in the operation control program (O3).		O3 program

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
RADF	EDH-5 Abnormality	E60-01	A resend request was received after the main body had sent data in response to the data resend request from EDH-5.	If copy operation is being performed, the machine stops after paper ejection. The RL1 (main) is turned OFF.	ICB (image control board) DFCB (RADF control board) Communication cable
		E60-02	A checksum error or SRGA reception error was detected when data was received in response to the data resend request which had been sent at detection of a checksum error or SRGA reception error (during reception in the serial communication mode).		
		E60-03	No response to initial communication request from main body to RADF for specified time after SW1 (main) is turned ON.		
		F60-11	When SW1 (main) was turned ON, area which had not been written by ISW was detected in the RADF control program.		DFCB (RADF control board) RADF program
		F67-01	PS306 (original registration detection) fault.	If there is a paper in copying process when this jam occurs, the machine stops after completion of copied paper ejection. RL1 (main) is turned OFF.	PS306 (original registration detection)
		F67-02	PS308 (original conveyance detection) fault.		PS308 (original conveyance detection)
		F67-03	PS309 (original reversal detection) fault.		PS309 (original reversal detection)
		F67-04	Non-volatile memory fault.		DFCB (RADF control board)
		F67-05	FM301 (ADF fan) fault.		FM301 (ADF fan)
		F67-06	PS304 (reverse jam detection) fault.		PS304 (reverse jam detection)
		F67-07	PS313 (original exit reverse detection) fault.		PS313 (original exit reverse detection)
		F67-08	M303 (tray up/down drive) fault.		M303 (tray up/down drive)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
ENS	FN-7/ FN-115 abnormality	E70-1	Communication error.	The main body and FNS are stopped immediately. RL1 (main) is turned OFF.	FNS CB (FNS control board) Connector
		E70-2	Start response error.		FNS CB (FNS control board) M2 (roller shift) PS18 (roller shift HP)
		F77-1	The shift unit does not reach the shift position or home position within the specified time.		FNS CB (FNS control board) M3 (tray up-down) PS2 (tray upper limit) PS7 (staple paper exit upper limit)
		F77-2	PS2 (tray upper limit) or PS7 (staple paper exit upper limit) does not go ON within the specified time after the start of M3(tray up-down) operation.		FNS CB (FNS control board) RB (relay board) M5 (alignment plate/upper) PS8 (alignment plate/upper HP)
		F77-3	PS8 (alignment plate/upper HP) does not go OFF within the specified time after the start of M5 (alignment plate/upper) operation, or does not turn ON after OFF.		FNS CB (FNS control board) M7(paper exit roller)
		F77-4	M7(paper exit roller) does not reach the prescribed speed within the specified time after the start of its operation.		FNS CB (FNS control board) M8 (paper exit opening) PS12 (paper exit opening)
		F77-5	Opening/closing operation is not completed within the specified time after the start of M8(paper exit opening) operation. (PS12(paper exit opening) does not go ON or OFF.)		FNS CB (FNS control board) RB (relay board) M11 (stapler movement) PS11 (stapler movement HP)
		F77-6	PS11(stapler movement HP) does not go OFF after the start of M11(stapler movement) operation. Or it does not go ON after OFF.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
FNS	FN-7/ FN-115 abnormality	F77-7	M4 (stapler rotation) abnormality.	The main body and FNS are stopped immediately. RL1 (main) is turned OFF.	FNS CB (FNS control board) RB (relay board) M4 (stapler rotation)
		F77-8	Stapler/R rotation abnormality.		FNS CB (FNS control board) RB (relay board) PS14 (stapler rotation HP)
		F77-11	PS33 (clincher HP/F) and PS34 (stapler HP/F) do not go ON within the specified time after the start of M23 (clincher/F) and M24(stapler/F) operation.		FNS CB (FNS control board) RB (relay board) M23 (clincher/F) M24 (stapler/F) PS33 (clincher HP/F) PS34 (stapler HP/F)
		F77-12	PS30 (clincher HP/F) and PS31 (stapler HP/F) do not go ON within the specified time after the start of M21 (clincher R) and M22 (stapler R) operation.		FNS CB (FNS control board) RB (relay board) M21 (clincher/R) M22 (stapler/R) PS30 (clincher HP/R) PS31 (stapler HP/R)
		F77-15	M1 (FNS conveyance) does not reach the prescribed speed within the specified time after the start of its operation.		FNS CB (FNS control board) M1(FNS conveyance)
		F77-21	PS23(stapling and folding stopper HP) does not go ON within the specified time after M14(stapling and folding stopper) starts operation of HP detection.		FNS CB (FNS control board) RB (relay board) M14 (stapling and folding stopper) PS23 (stapling and folding stopper HP)
		F77-22	PS24 (alignment plate/lower HP) does not go ON within the specified time after M15(alignment plate/lower) starts operation of HP detection.		FNS CB (FNS control board) RB (relay board) M15 (alignment plate/lower) PS24 (alignment plate/lower HP)
		F77-23	PS21(stapling and folding stopper release HP) does not go ON within the specified time after M17(stapling and folding stopper release) starts operation of HP detection.		FNS CB (FNS control board) RB (relay board) M17 (stapling and folding stopper release) PS21 (stapling and folding stopper release HP)
		F77-24	PS27(folding stopper HP) does not go ON within the specified time after M18(folding stopper) starts operation of HP detection.		FNS CB (FNS control board) M18 (folding stopper) PS27 (folding stopper HP)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
FNS	FN-7/ FN-115 abnormality	F77-25	PS22(folding knife HP) does not go ON within the specified time after M19(folding knife) starts operation of HP detection.	The main body and FNS are stopped immediately. RL1 (main) is turned OFF.	FNS CB (FNS control board) M19 (folding knife) PS22 (folding knife HP)
		F77-26	M20(folding conveyance) does not reach the prescribed speed within the specified time after the start of its operation.		FNS CB (FNS control board) M20 (folding conveyance)
TU	TMG-2 abnormality	F77-31	M101(conveyance) does not reach the prescribed speed within the specified time after the start of its operation.		TUDB (TU drive board) M101 (conveyance)
		F77-32	PS106(trimmer HP) does not turn ON within the specified time after M102(trimmer) starts operation of HP detection.		TUDB (TU drive board) M102 (trimmer) PS106 (trimmer HP)
		F77-33	PS103(stopper HP) does not turn ON within the specified time after M103(stopper) starts operation of HP detection.		TUDB (TU drive board) M103 (stopper) PS103 (stopper HP)
		F77-34	PS104(stopper release HP) does not turn ON within the specified time after M104(stopper release) starts operation of HP detection.		TUDB (TU drive board) M104 (stopper release) PS104 (stopper release HP)
		F77-35	PS105(press HP) does not turn ON within the specified time after M105(press) starts operation of HP detection.		TUDB (TU drive board) M105 (press) PS105 (press HP)
		F77-36	PS112(pushers) does not turn ON within the specified time after M107(pushers) starts operation of HP detection.		TUDB (TU drive board) M107 (pushers) PS112 (pushers)
		F77-37	PS110(upper limit) does not turn ON within the specified time after M106(holder) starts operation of HP detection.		TUDB (TU drive board) M106 (holder) PS110 (upper limit)
PI	Cover Inserter C abnormality	F77-41	PS203 (sheet tray lower limit) or PS204 (sheet tray upper limit) does not go ON within the specified time after the start of M201(sheet tray) operation.		FNS CB (FNS control board) DB(PI drive board) M201(sheet tray) PS203(sheet tray lower limit) PS204(sheet tray upper limit)

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
PZ	ZK-2 abnormality	F77-52	PS3 (1st stopper HP) is not turned on after the specified time has elapsed since M2 (1st stopper) started the HP search operation.	The main body, FNS and PZ are stopped immediately. RL1 (main) is turned OFF.	PZCB (PZ control board) M2 (1st stopper) PS3 (1st stopper HP)
		F77-53	PS2 (2nd stopper HP) is not turned on after the specified time has elapsed since M3 (2nd stopper) started the HP search operation.		PZCB (PZ control board) M3 (2nd stopper) PS2 (2nd stopper HP)
PU/PZ	PK-3, ZK-2 abnormality	F77-54	Punching operation has not finished within the specific time after MC1(punch clutch) is turned ON.	The main body, FNS and PK are stopped immediately. RL1 (main) is turned OFF.	PUCB(PU control board) PZCB (PZ control board) M4(punch) MC1(punch clutch) PS5(punch HP)
		F77-55	PS4(puncher) is not turned ON within the specific time after M5(punch unit shift) starts HP searching.		PUCB(PU control board) PZCB (PZ control board) M5(punch shift) PS4(punch shift HP)
PZ	ZK-2 abnormality	F77-56	The M10 (conveyance motor fan) EM signal is abnormal at specified time after the M10 is turned ON, and the condition still persists even after three tries since the M10 was turned OFF.		PZCB (PZ control board) M10 (conveyance motor fan)
FNS	FNS abnormality	F77-61	The cancellation of the lock detection signal is not detected at specified time after FM1/2/3 (cooling 1/2/3) are turned ON, and the condition still persists ever after three tries since the FM 1/2/3 were turned OFF.	The main body and FNS are stopped immediately. RL1 (main) is turned OFF.	FM1 (cooling 1) FM2 (cooling 2) FM3 (cooling 3)
		F77-91	Communication abnormality in FNS CB(FNS control board) when sub-CPU receives data.		FNS CB (FNS control board)
		F77-92	Communication abnormality in FNS CB(FNS control board) when main CPU receives data.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	Communication abnormality	F80-01	Check on initial communication between ICB and PRCB. No response from PRCB (printer control board) for specified time after SW1 (main) is turned ON.	The main body is stopped immediately and RL1 (main) is turned OFF.	PRCB (printer control board)
		F80-02	Check on communication abnormality between ICB and PRCB. Communication abnormality in PRCB (printer control board).		CB (image control board) ICB IFB (ICB I/F board) Connector connection failure
		F80-03	Communication abnormality in operation unit.		OB1 (operation board 1)
ISW	ISW abnormality	F80-10	When SW1 (main) was turned ON, an area which had not been written by ISW was detected in the printer control program.		C1 program
		F80-11			C2 program
		F80-12			C3 program
		F80-13			C4 program
		F80-21	When SW1 (main) was turned ON, an area which had not been written by ISW was detected in the video I/F control program.		Video I/F program
		F80-30	When data is transferred by ISW, normal header information cannot be received within the specified time.		Printer cable PC parallel port setting
		F80-31	When data is transferred by ISW, a checksum error or header error was detected in the downloaded data.		Printer cable Program file error
		F80-32	When data is transferred by ISW, data cannot be written to the flash ROM properly.		Printer cable Program transfer destination board.
Main body	ADU abnormality	E90-01	Check on initial communication between ADUSDB and PRCB. ADU drive serial input error 1. Serial data cannot be received from ADUSDB (ADU stand drive board) (ID 0) within specified time when SW1 (main) was turned ON.		ADUSDB (ADU stand drive board) PRCB (printer control board) Connector connection failure
		E90-02	Check on communication abnormality between ADUSDB and PRCB. ADU drive serial input error 1. Serial data cannot be received from ADUSDB (ADU stand drive board) (ID 7) within specified time when SW1 (main) was turned ON.		
		F93-01	Check on blown fuse of 12 V in ADUSDB. -5 V and 12 V blown fuse signal is detected during serial initial communication.		

	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	ADU abnormality	F93-02	Check on blown fuse of -5 V in ADUSDB. -5 V blown fuse signal is detected during serial initial communication. At this time 12V blown fuse signal is not detected.	The main body is stopped immediately and RL1 (main) is turned OFF.	ADUSDB (ADU stand drive board) PRCB (printer control board) Connector connection failure
		F93-03	Check on blown fuse of M8 (ADU conveyance) in ADUSDB. When M8 which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected.	If copy operation is being performed, the machine stops after paper ejection. The RL1 (main) is turned OFF.	M8 (ADU conveyance) ADUSDB (ADU stand drive board) Harness short circuit with the ground Connector connection failure
		F93-04	Check on blown fuse of M7 (ADU reverse) in ADUSDB. When M7 which has been OFF is turned ON, an abnormal detection signal (blown fuse) is detected.		M7 (ADU reverse) ADUSDB (ADU stand drive board) Harness short circuit with the ground Connector connection failure
		F93-05	Check on 24 V power supply. An abnormal detection signal (blown solenoid/clutch fuse) is detected at the time of start. An abnormal detection signal (24 V off) is detected.	The machine stops immediately and RL1 (main) is turned off.	Solenoids Clutches DCPS2 (DC power supply unit 2) Connector connection failure Harness short circuit with the ground
		F93-06	An abnormal detection signal (blown solenoid/clutch fuse) is detected at the time of start. An abnormal detection signal (24 V off) is not detected.		
		F95-01	The FM10/11 (ADU cooling 1/2) EM signal was abnormal at specified time after turning ON of FM10/11. At specified time after turning FM10/11 OFF and ON again, the FM10/11 EM signal is still abnormal and an abnormal detection signal (24 V off) is detected.		DCPS2 (DC power supply unit 2) ADUSDB (ADU stand drive board) FM10 (ADU cooling 1) FM11 (ADU cooling 2) Harness short circuit with the ground Connector connection failure
		F95-02	The FM10/11 (ADU cooling 1/2) EM signal was abnormal at specified time after turning ON of FM10/11. At specified time after turning FM10/11 OFF and ON again, the FM10/11 EM signal is still abnormal and an abnormal detection signal (blown fuse) is detected.		

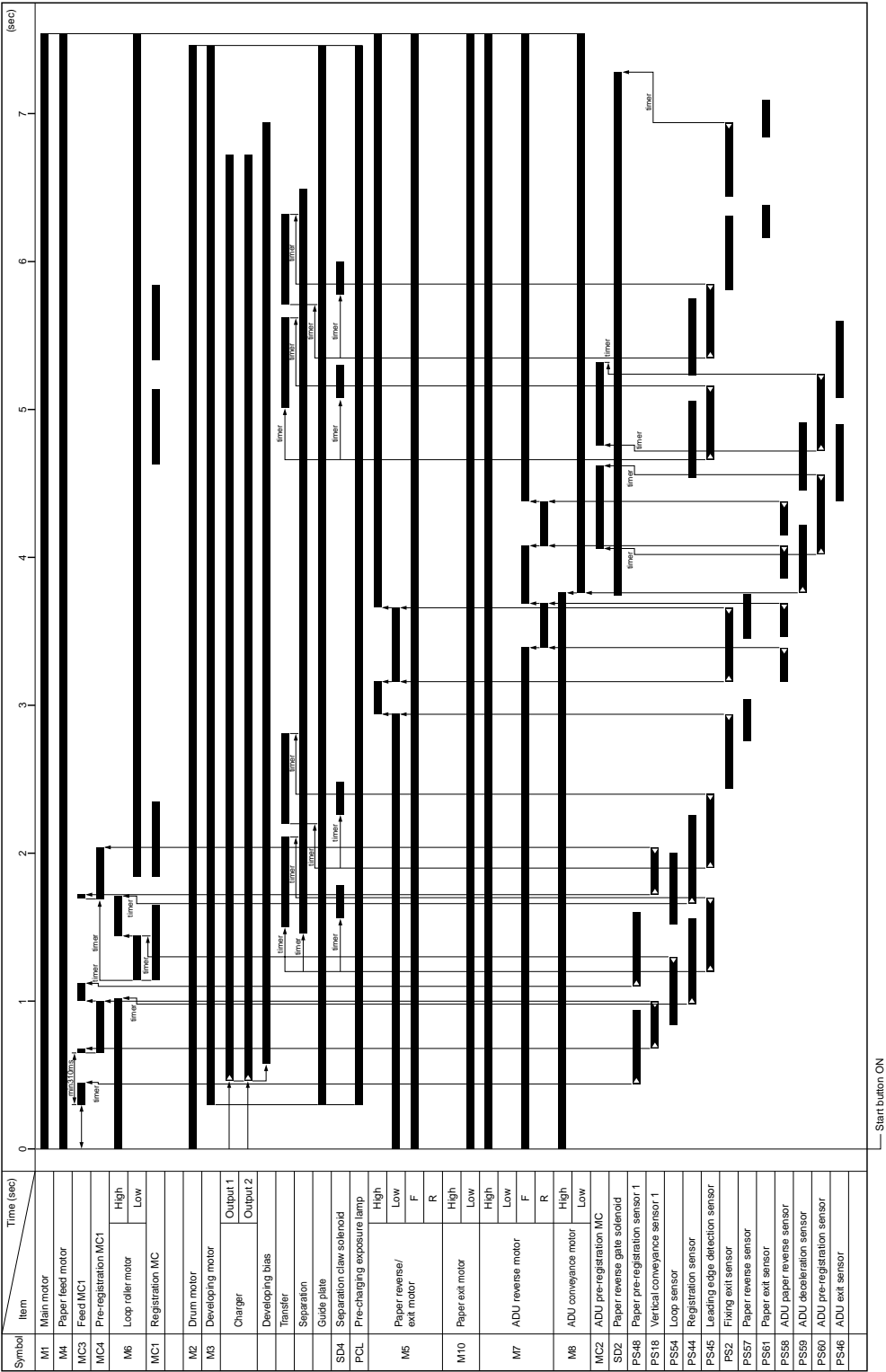
	Classification	Warning Code	Cause	Machine response	Estimated abnormal parts
Main body	ADU abnormality	F95-03	Check on rotation of FM10/11 (ADU cooling 1/2). The FM10/11 EM signal was abnormal at specified time after turning ON of FM10/11. At specified time after turning FM10/11 OFF and ON again, the FM10/11 EM signal is still abnormal and an abnormal detection signal (24 V off/blown fuse) is not detected.	The machine stops immediately and RL1 (main) is turned off.	DCPS2 (DC power supply unit 2) ADUSDB (ADU stand drive board) FM10 (ADU cooling 1) FM11 (ADU cooling 2) Harness short circuit with the ground Connector connection failure

When any one of the following abnormality occurs, the user can disconnect the faulty unit temporarily. When a warning code is displayed, press the RESET button and turning the main switch OFF/ON according to the LCD message allows you to use the machine until you turn the main switch OFF/ON again.

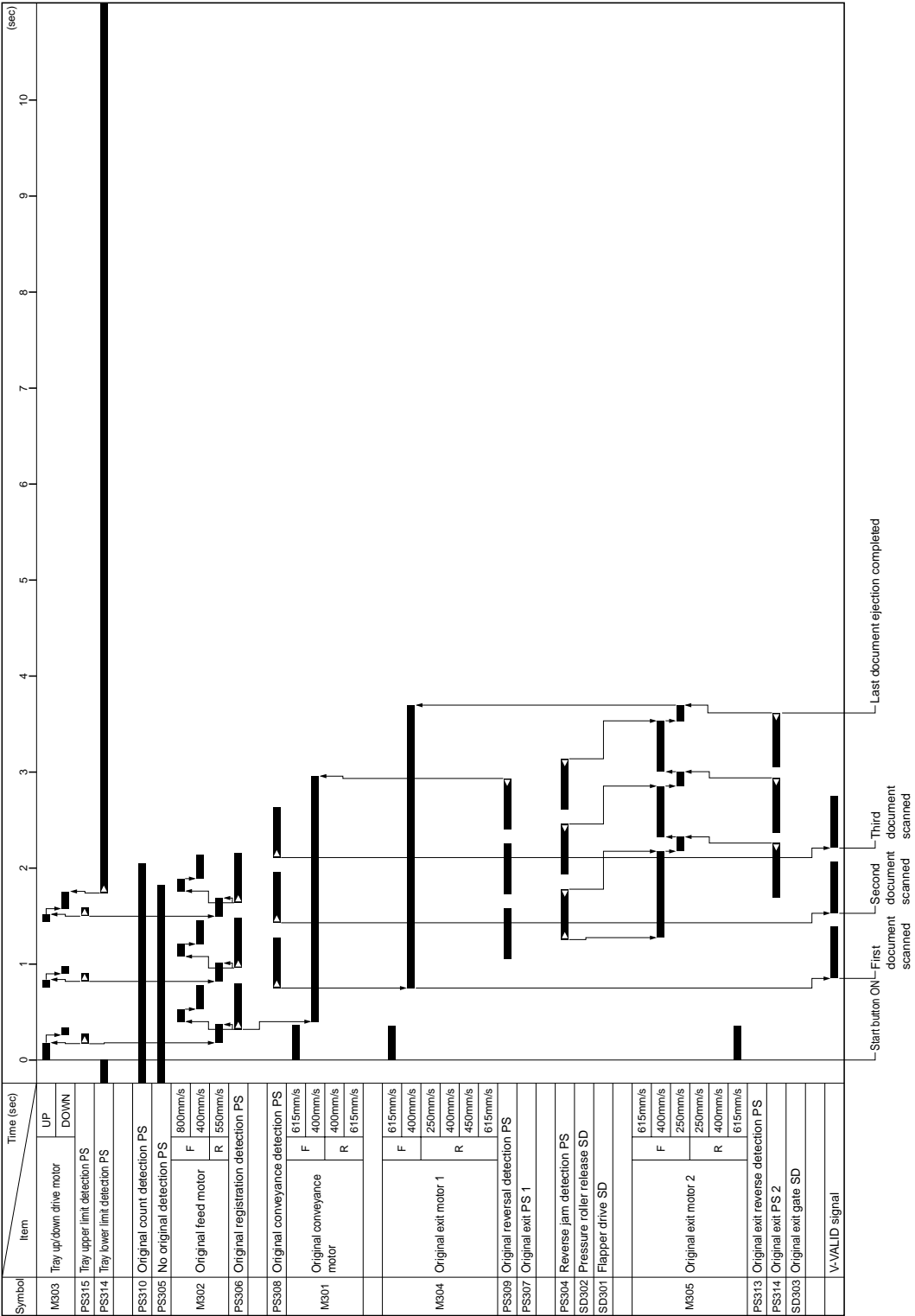
Warning code	Cause	Unit to be disconnected
F18-10	Tray 1 lifting abnormality	Tray 1
F18-20	Tray 2 lifting abnormality	Tray 2
F18-30	Tray 3 lifting abnormality	Tray 3
F13-02	LT paper feed motor abnormality	Tray 4
F18-40	Tray 4 (LCT) lifting abnormality	
F46-40 to 43	HDD abnormality	HDD
F67-01 to 08	DF drive abnormality	RADF
F77-24 to 26	Folding/stapling abnormality	Folding / stapling unit
F77-31 to 37	Trimmer drive abnormality	TU
F77-41	PI abnormality	PI
F77-54 to 55	PU abnormality	PU
F77-52 to 56	PZ abnormality	PZ

TIMING CHART

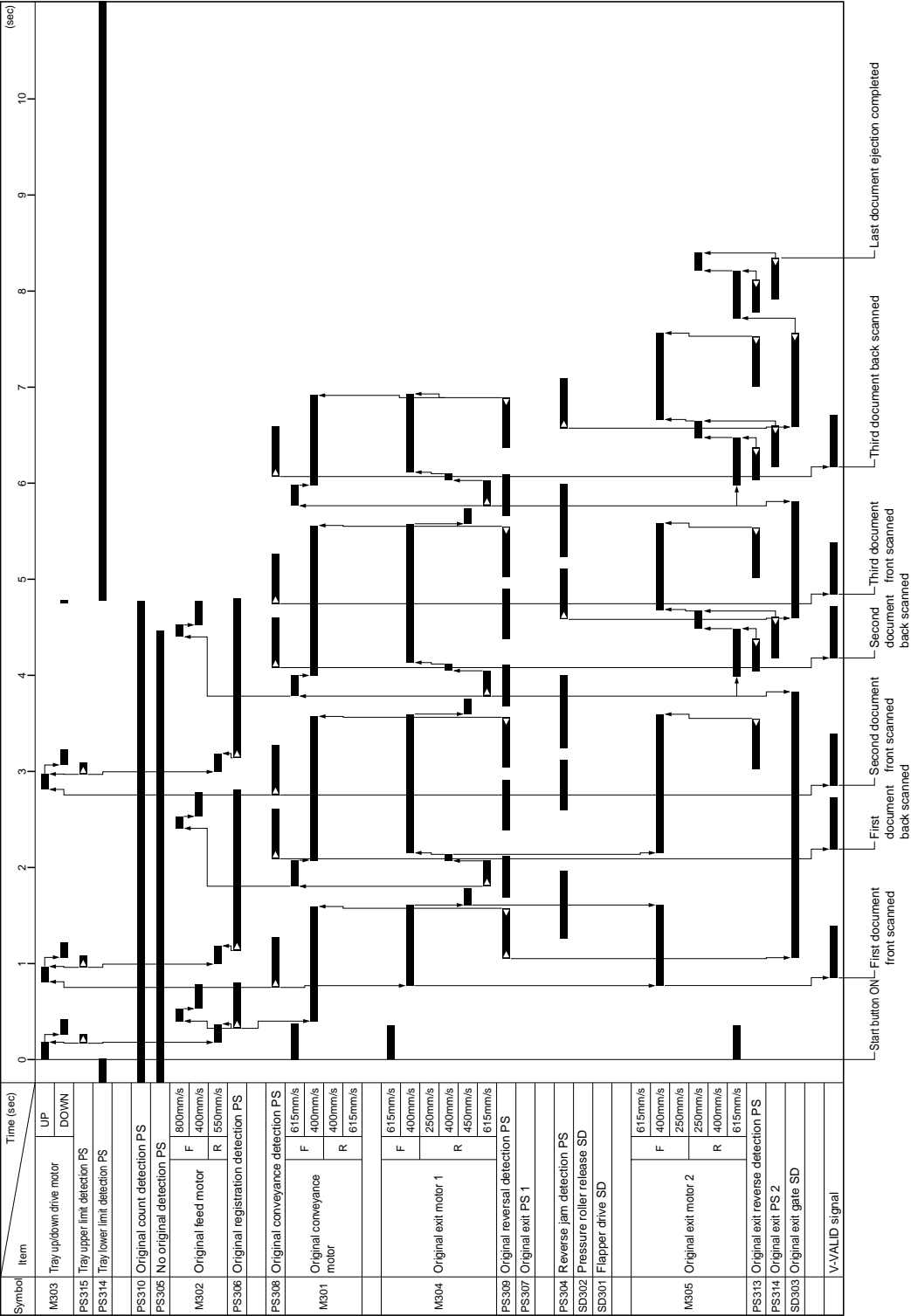
[1] Di850 Timing Chart
A4, life size, Double-sided copy, 2 sets, Tray1



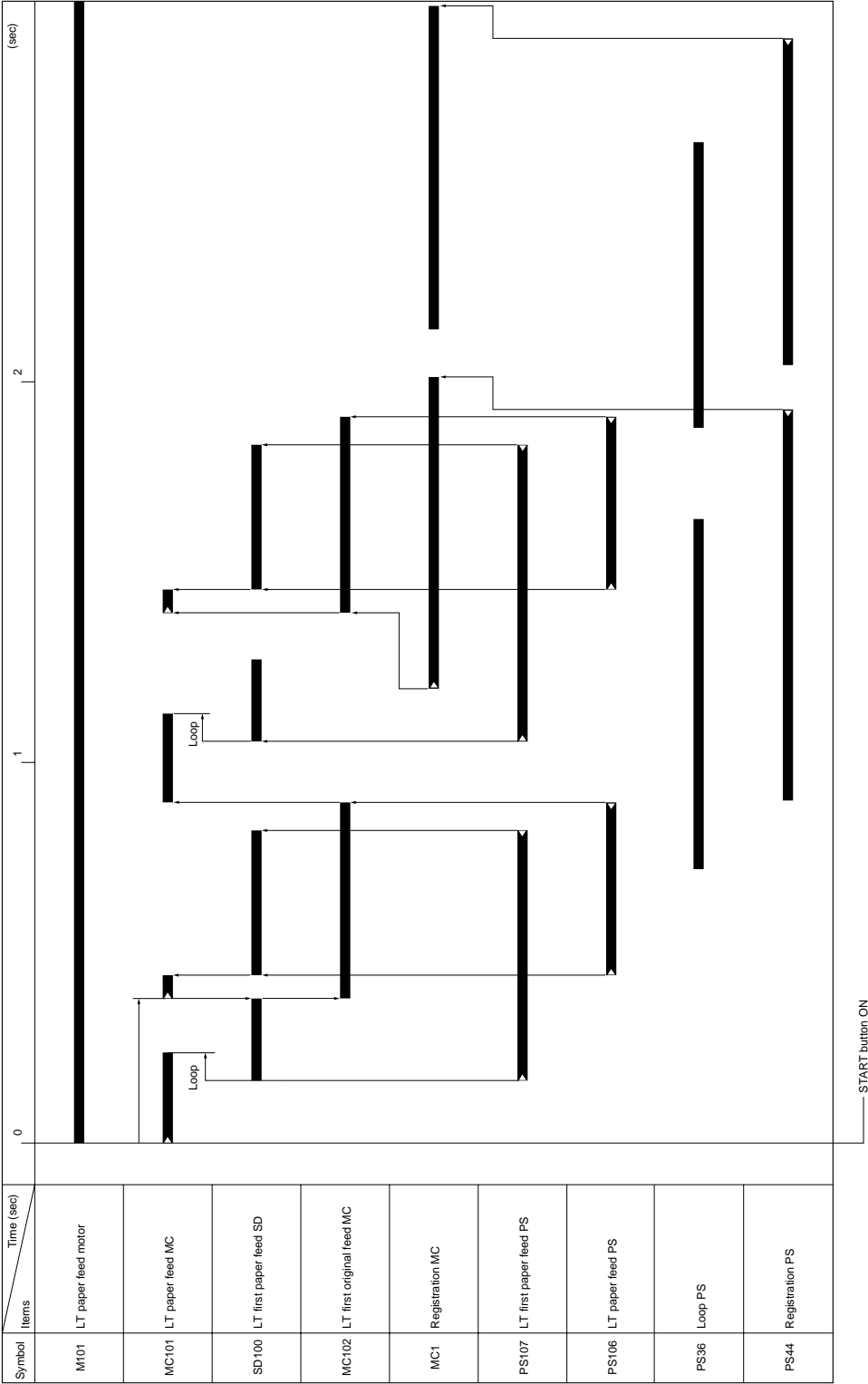
[2] EDH-5 Timing Chart (1)
A4, Single-side originals, 3 sheets



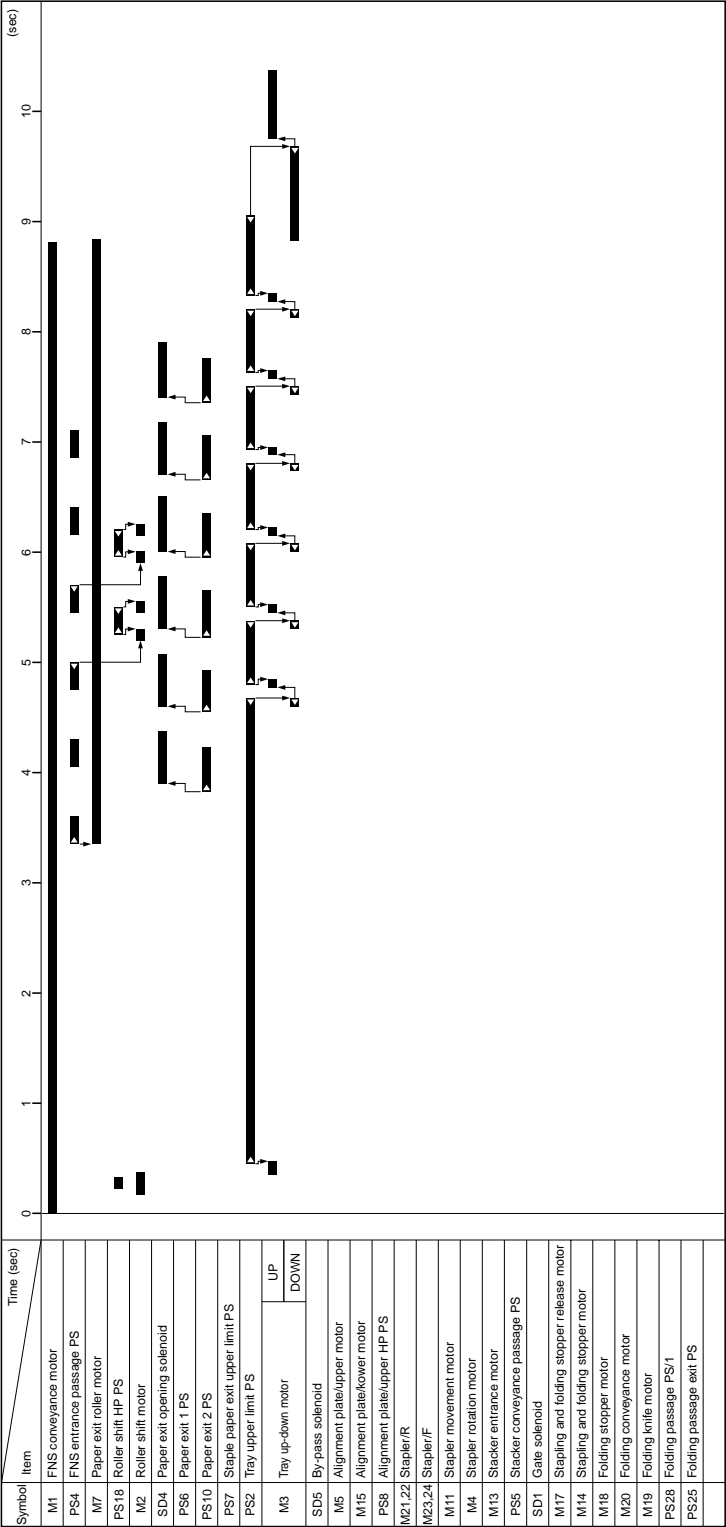
[3] EDH-5 Timing Chart (2)
A4, Double-side originals, 3 sheets



[4] C-403/C-404 Timing Chart
A3, 2 sheets



[5] FN-7/FN-115 Tlming Chart (1)
Sort, A4, 2 originals (single-side), 3 sets, 1:1

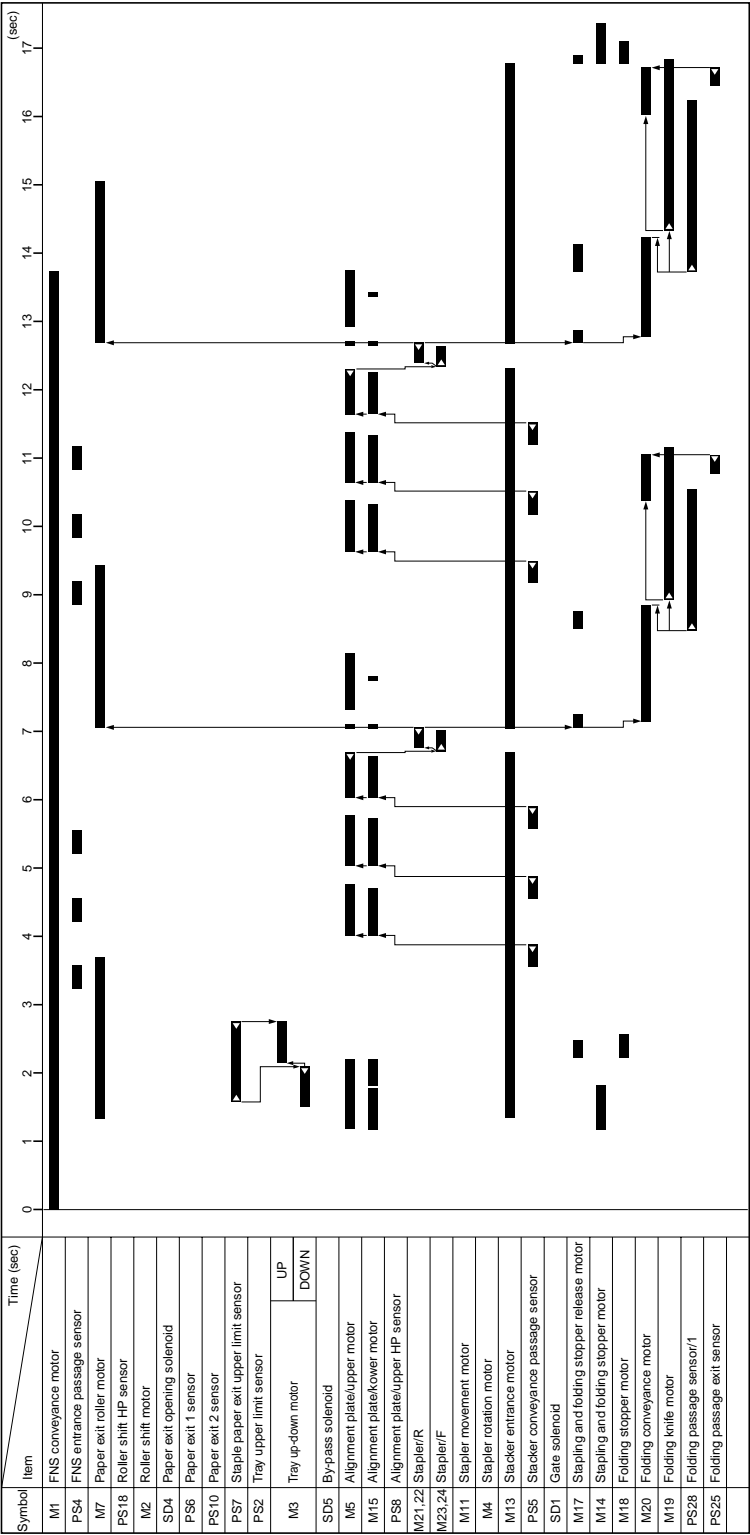


[6] FN-7/FN-115 Timing Chart (2)
2 staples (flat), A4, 2 originals (single-side), 3 sets, 1:1

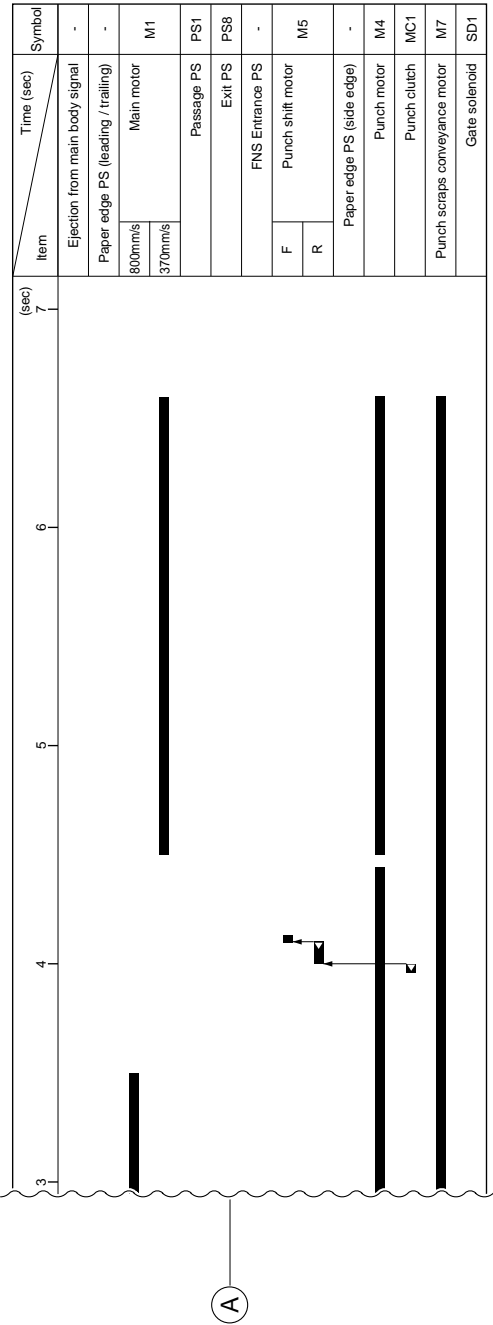
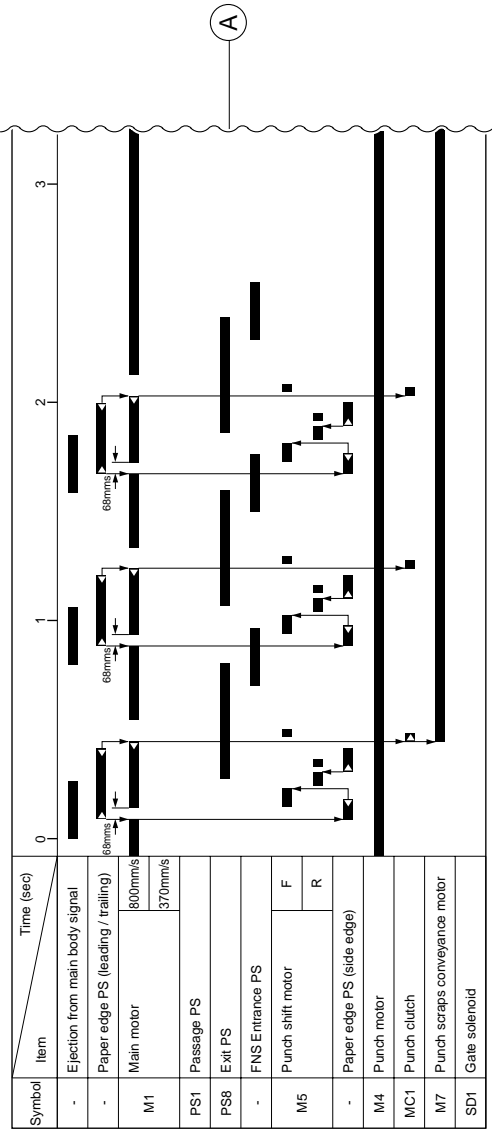


[7] FN-7/FN-115 Timing Chart (3)

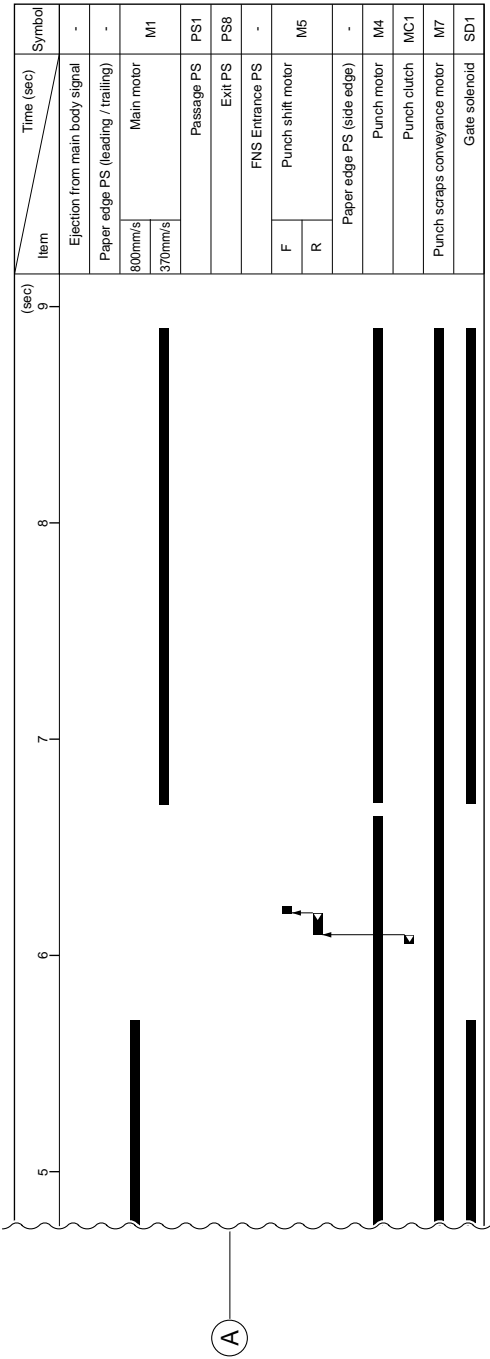
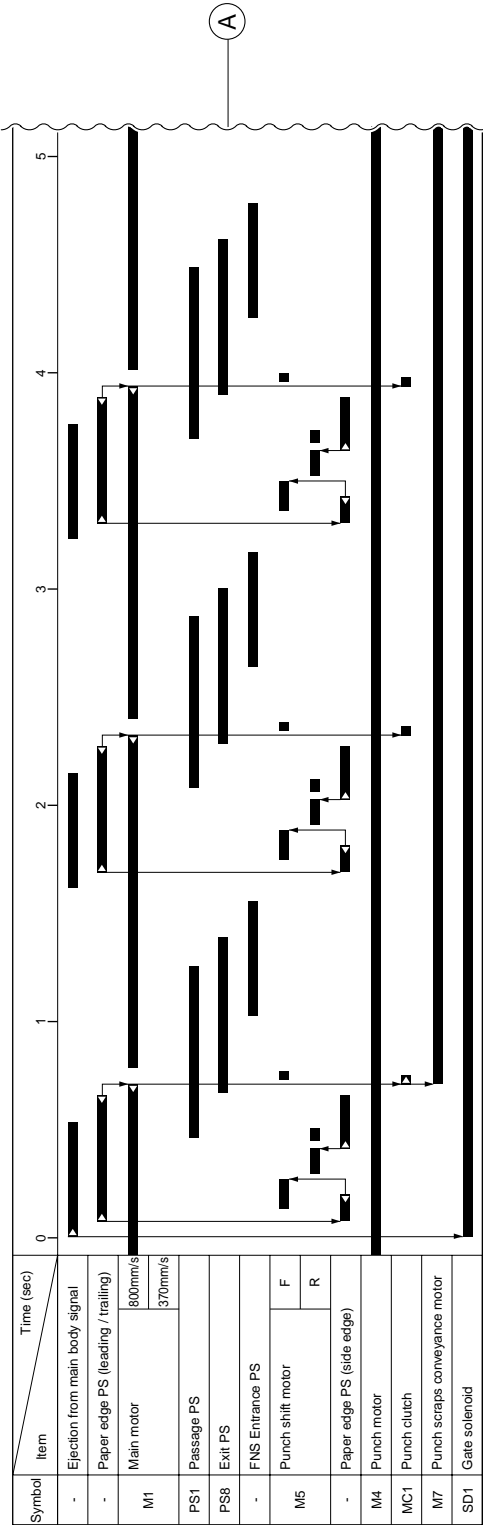
Stitch and fold, A4R, 3 originals (single-side), 2 sets , 1:1, 1-1 Mode



[8] PK-3 Timing Chart (1)
Punch mode, A4, Single-side copy, 3 papers

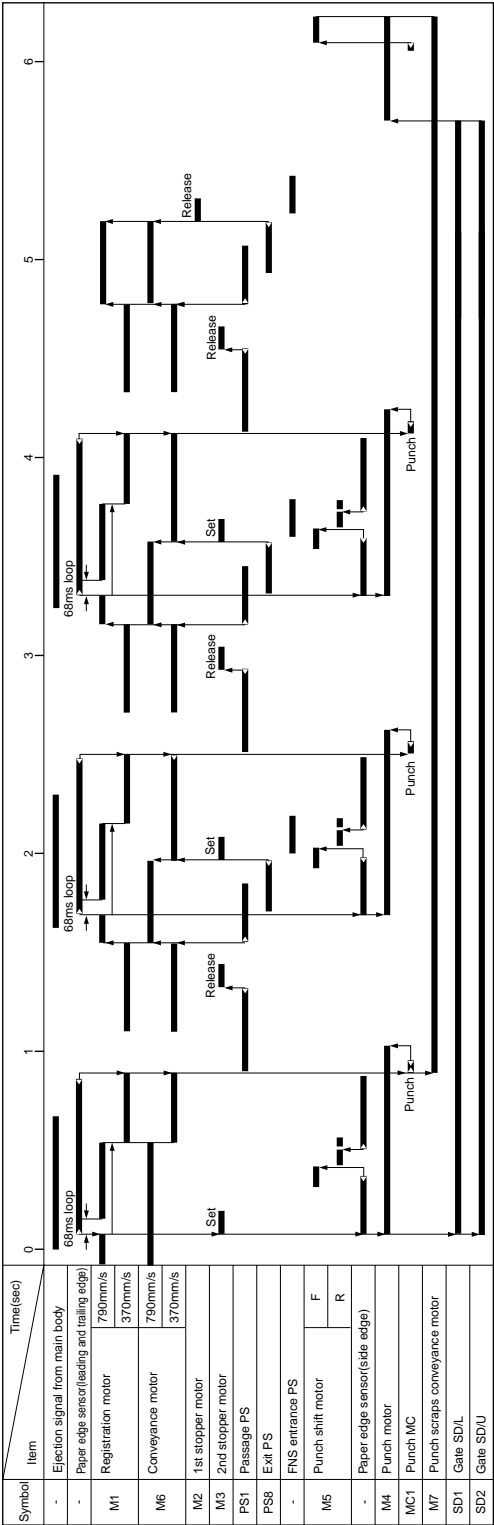


[9] PK-3 Timing Chart (2)
Punch mode, A3, Single-side copy, 3 papers



[10] ZK-2 Timing Chart

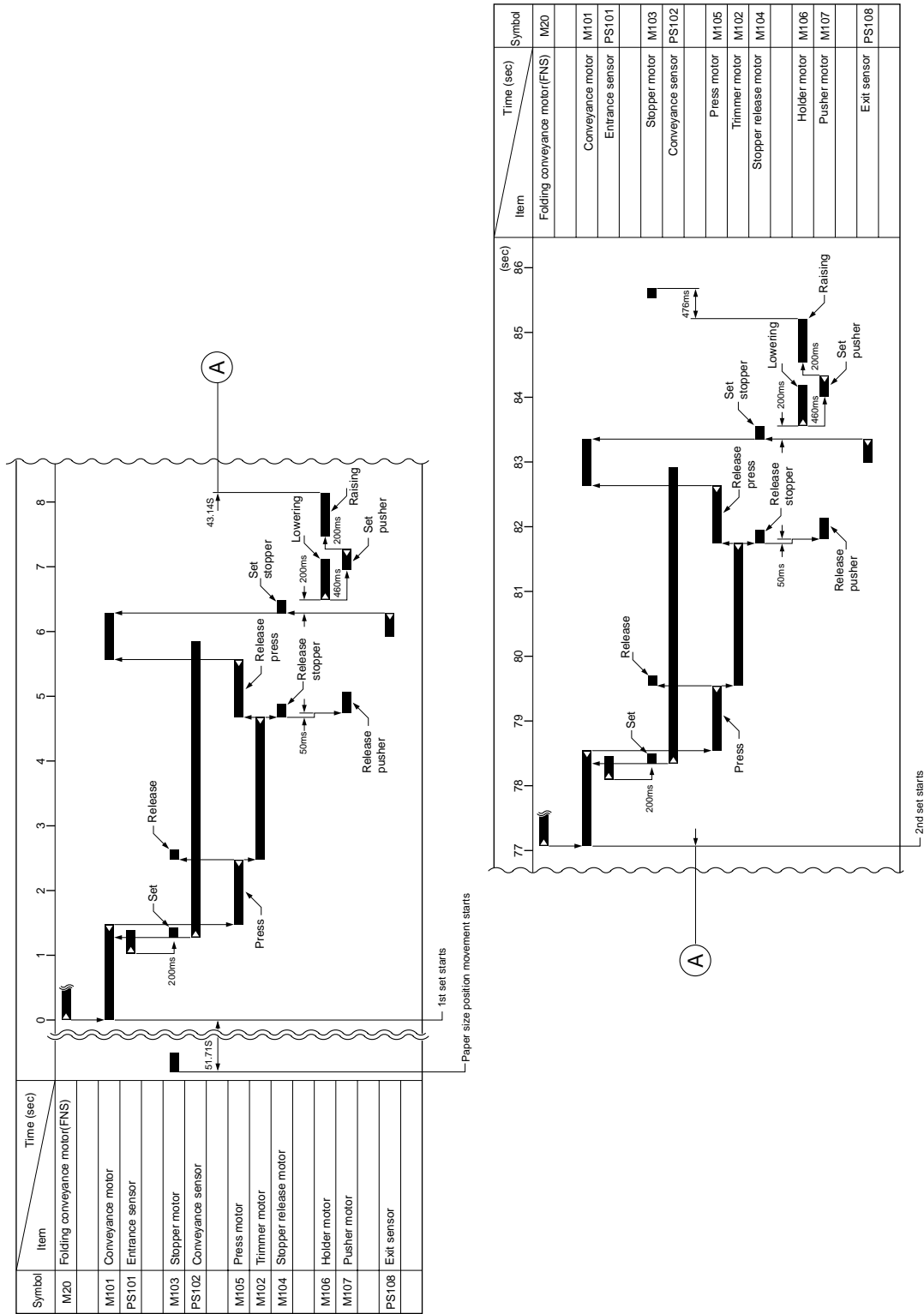
Z-folding + Punch mode, A3, Single-side copy, 3 papers



[11] TMG-2 Timing Chart (1)

Trim mode, A3, 16 sheets, 2 sets

4 ELECTRIC PARTS LIST



Through mode, A3, 16 sheets, 2 sets

Through mode, A3, 16 sheets, 2 sets



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ISW

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WHAT'S ISW?

ISW (In-System Writer) is a process of updating the control programs stored in flash ROM mounted on various control boards in a Minolta digital copier without isolating the boards from the copier. Running ISW enables you to upgrade control programs without replacing the boards and maintain the boards during their replacement.

Tool available for running ISW include ISW Trns (PC software), which connects a personal computer (PC) to the digital copier.

This tool can be plugged into the ISW connector of the digital copier to directly update the control programs in flash ROM assembled in the machine.

This chapter focuses on instructions to set up this machine to run ISW.

Note: Only ISW Trans is enabled with ISW for this machine.

SETUP

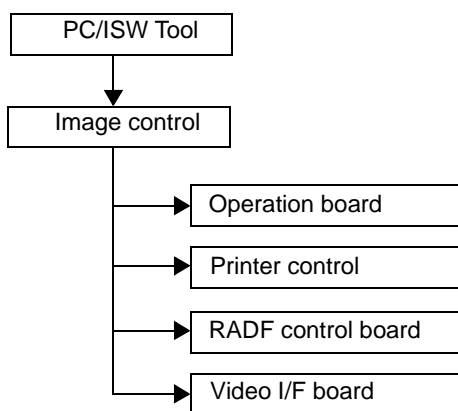
[1] ISW-compatible boards

This machine allows ROM data residing on the following boards to be updated via ISW Tool:

- Image control board
- Printer control board
- Operation board
- RADF control board
- Video I/F board

The ROMs of other boards than the above need to be replaced.

[2] Data flow



Important Note:

The availability of the Graphics control board is prerequisite to updating ROM data on other boards.

[3] Prepare the copier to start an ISW transfer

1. Transfer modes

The copier supports three transfer modes as described below.

(1) Power-on mode

If the copier does not have the image control program installed, its writing to the copier is enabled when the main switch is turned on. Because the image control board controls the power supply to the operation board, nothing will appear on the operation LCD and timer LED will blink even though the operation control program has been installed on the copier.

(2) HELP + CHECK mode

Turning ON the copier with HELP and CHECK puts it into the HELP + CHECK mode. If the copier has the image control program installed, but not the operation control program, the 25 mode would not launch. This mode is specifically maintained to enable ISW in this situation.

2. 25 mode

The 25 mode works only where the copier has both the image control and operation control programs installed.

(Some part of HELP+CHECK mode is used to update the operation control program in 25 mode.)

3. Instances of ISW transfer

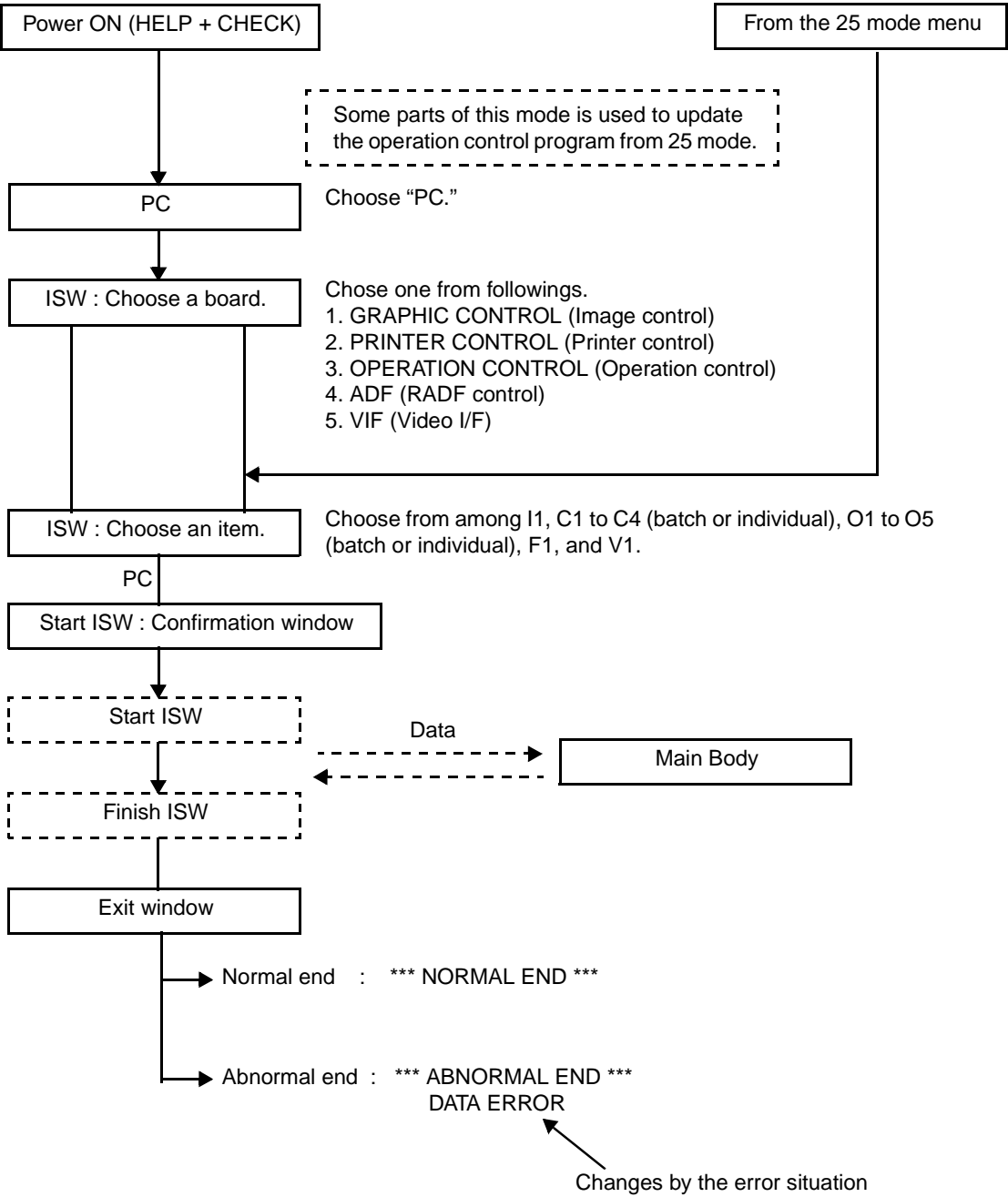
(1) Writing ROM data newly (Ex. after replacing boards)

	Normal startup display	Writing method	Condition
Image control	Flashing timer LED No display on the operation LCD	Writing is enabled with power turned ON.	The copier does not have the image control program installed.
Operation control	Error code display	Writing is enabled by launching the HELP + CHECK mode	The copier has the image control program installed.
Others	Error code display	25 mode or HELP + CHECK mode	The copier has the image control program installed.

(2) Upgrading

	Normal startup display	Writing method	Condition
Image control	Normal	25 mode or HELP + CHECK mode	The copier has all the programs installed.
Operation control	Normal		
Others	Normal		

[4] HELP + CHECK mode operation flow



[5] HELP + CHECK mode operating procedure

1. Prerequisite

Turn the main SW ON while pressing "HELP" and "CHECK" button.

2. ISW write mode select menu

Function: This window lets you select a mode in which to update ISW.

ISW WRITE MODE SELECT MENU	
1. PC	
PLEASE PUSH TEN-KEY	9. EXIT

a. Operating instructions

(1) Choose ISW WRITE MODE

Choose "PC" for both using personal computer and ISW Tool.

(2) To exit writing

Press 9 (EXIT) to open the power-off window.

3. ISW device select menu

Function: This window lets you select the control board on which to update ROM data.

You can choose from among graphics control, printer control, operation control, ADF, and VIF.

ISW WRITE MODE SELECT MENU	[MODE:PC]
1. GRAPHIC CONTROL	
2. PRINTER CONTROL	
3. OPERATION CONTROL	
4. ADF	
5. VIF	
PLEASE PUSH TEN-KEY	0. PREVIOUS 9. EXIT

a. Operating instructions

(1) Select the control board on which to update ROM data. Choose from among 1 to 5. When you select a number, the associated item select menu appears.

(2) To return to the previous window

Press 0 (PREVIOUS) to return to the ISW write mode select menu.

(3) To exit writing

Press 9 (EXIT) to open the power-off window.

4. Item select menu

Function: This window lets you select write items.

OPERATION CONTROL - ITEM SELECT MENU [MODE:PC]

1. 01

2. 02

3. 03

4. 04

5. 05

6. ALL

PLEASE PUSH TEN-KEY0. PREVIOUS9. EXIT

- a. Operating instructions
- (1) Individual write
- Choose from among 1 to 5. When you select a number, the start confirmation window opens.
- (2) Batch write
- To write all items in a batch, select "ALL." When you select "ALL," the start confirmation window opens.
- (3) To return to the previous window
- Press 0 (PREVIOUS) to return to the ISW device select menu.
- (4) To exit writing
- Press 9 (EXIT) to open the power-off window.

5. Start confirmation window

Function: This window prompts you to confirm whether to start running ISW or not.

OPERATION CONTROL - 01 [MODE:PC]

ISW START OK?

PLEASE PUSH TEN-KEY1. YES2. NO

- a. Operating instructions
- (1) Choose YES to start running ISW.
- (2) TChoose NO to cancel.
- When you cancel, the item select menu appears again.
6. Executing window
- Function: This window displays the status of exeution in progress.

EXECUTING

- a. Operating instructions
- (1) The executing indicator flashes. When the exe-cution ends, the ending result window opens.

7. Ending result window

Function: This window displays the status of ISW ending.

*** NORMAL END ***

PLEASE PUSH TEN-KEY 0. PREVIOUS 9. EXIT

Abnormal end

*** ABNORMAL END ***
INPUT DEVICE ERROR
(ERROR CODE : xx)

PLEASE PUSH TEN-KEY 0. PREVIOUS 9. EXIT

8. Power-off window

*** PLEASE TURN OFF A POWER SUPPLY ***

a. Operating instructions

(1) Individual write

Choose from among 1 to 5. When you select a number, the start confirmation window opens.

a. Operating instructions

- (1) Choose 0 (CONTINUE) to return to the item select menu.

(2) To exit writing

Press 9 (EXIT) to open the power-off window.

[6] Error code table for ISW Setup



Error Code	Description	Action No.
01	There is an error in the command to ISW processing unit.	a
1F	A program error is detected.	a
41	Input data format error. (during ISW to operation board)	b
42	Invalid machine name input data. (during ISW to operation board)	b
43	Invalid board name input data. (during ISW to operation board)	b
81	Input device error such as input timeout. (during ISW to operation board)	c
C1	Failed to erase flash ROM. (during ISW to image control board)	e
C2	Write to flash ROM has failed. (during ISW to image control board)	e
C3	ROM checksum error. (during ISW to image control board)	h
C4	Output device error such as output timeout.	f
E9	Communication parameter error at image control unit to operation unit I/F. (during ISW to operation board)	d
EA	Command sequence error at image control unit to operation unit I/F. (during ISW to operation board)	d
EB	Communication timeout error at image control unit to operation unit I/F. (during ISW to operation board)	d
F0	Flash ROM error (during ISW to operation board)	g
F1	Flash verify error (during ISW to operation board)	g
F2	Flash write error (during ISW to operation board)	g
F3	Flash erase error (during ISW to operation board)	g
F8	Receive checksum error at image control unit to operation unit I/F. (during ISW to operation board)	d
F9	Receive header code error at image control unit to operation unit I/F. (during ISW to operation board)	d
FA	Receive parity error at image control unit to operation unit I/F. (during ISW to operation board)	d
FB	Receive framing error at image control unit to operation unit I/F. (during ISW to operation board)	d
FC	Receive overflow error at image control unit to operation unit I/F. (during ISW to operation board)	d

<Error code table action classification>

Action No.	Action
a	Program is not executing normally. Restart from power ON and re-execute the ISW.
b	Check the ISW transfer data file.
c	Check that the communication cable between input devices (PC or ISW tool) is properly connected.
d	Check the image control unit to operation unit I/F.
e	There is an error in the flash ROM on the image control board. Restart from ISW. If the error persists, the life of the image control board flash ROM may have expired. Replace the image control board.
f	An error was detected in the ISW target board. Check the ISW target board.
g	There is an error in the flash ROM on the operation board. Restart from ISW. If the error persists, the life of the operation board flash ROM may have expired. Replace the operation board. * The system may fail to restart.
h	The checksum result after program write does not match the ROM checksum data of the ISW transfer data file. Restart from ISW. If the error persists, the ISW transfer data file may not be created correctly.

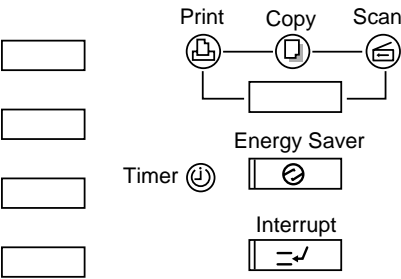
[7] Preparing the copier to transfer

Start the copier with 25 mode enabled to put the copier into ISW transfer wait state.

Step	Procedure
1	Enter 25 mode.
2	[Memory setting mode menu Screen] Press "  ISW".
3	[ISW mode menu Screen] Select the control board on which to update ROM data.
4	[ISW mode Screen] The  key appears, indicating the copiers readiness to launch an ISW transfer.
5	Follow operating instructions in Minolta ISW (In-System Writer) Service Hand book.

[8] Relationships between processing states and operational LEDs

Note: This is displayed only when installing the program to graphics control for the first time.



No.	Processing	Timer LED (orange)	Energy Saver LED (green)
1	Initializing CPU now	● OFF	● OFF
2	Checking memory	● OFF	● OFF
3	Memory check error (waiting for data from PC)	⊙ Flashing	● OFF
4	ISW processing (receiving data)	● OFF	⊙ Flashing
5	ISW processing (writing to flash ROM)	● OFF	⊙ Flashing
6	Transfer data error	⊙ Flashing	⊙ Flashing
7	Flash ROM write error	⊙ Flashing	○ Steady lit
8	Memory check successful and reboot	● OFF	● OFF

[9] Rewriting procedure after an error interruption

If errors occur while writing ROM data, it is written the same way as explained in "Writing ROM data newly" in "[3]-3. Instances of ISW transfer".

• Image control program

The timer LED (orange) flashes. (Nothing will appear on the operation LCD because communication with the operating unit is disabled.)
Retry ISW after turning the main switch OFF, then ON.

• Operation control program

Since the 25 mode is disabled, launch the HELP + CHECK mode to retry ISW.

• Other control programs

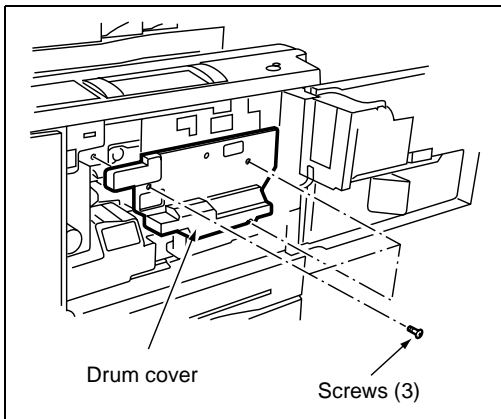
Relaunch the 25 mode to retry ISW. (It is assumed that the copier has both the image control and operation control programs successfully installed.)

[10] Connecting the ISW connector

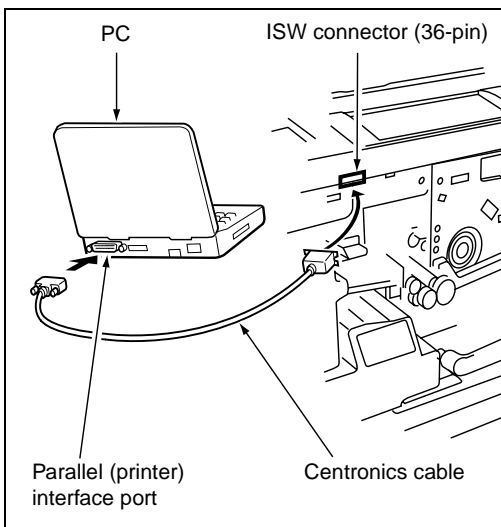
The ISW connector is hidden under the drum cover. Detach this cover to run ISW.

a. Procedure

- (1) Open the left and right front doors.
- (2) Open the toner supply unit.
- (3) Loosen three screws to detach the drum cover.



- (4) Connect the PC parallel port and the copier ISW connector with parallel interface cable.



UPDATING WITH ISW Trns

[1] Setting Up ISW Trns

Note: The explanation screen here is used based on another model. Therefore, there is a thing different from an actual screen.


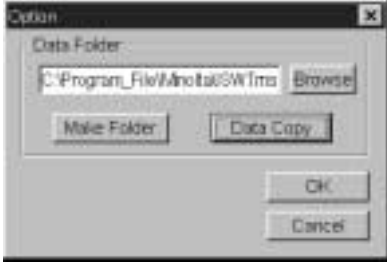
1. Installing the application program

Install the ISW Trns on the PC.

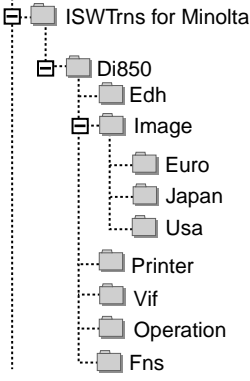
Step	Procedure
1	Boot the PC.
2	Mount setup disk 1 on the PC and double-click the [Setup.exe] icon to start the installer. Note: If an old version ISW Trns program is present, uninstall it first, then start the setup operation.
3	[ISW Trns setup window] Confirm the installation folder as instructed by on-screen guidance and click Next. Note1: By default, the program installs in [C:\Program_File\Minolta\ISWTrns for Minolta]. Note2: To change the installation folder, click Browse and type a new folder name.
4	[Program folder confirmation window] Confirm the ISW Trns program installation folder as instructed by on-screen guidance and click Next. Note1: By default, the ISW Trns program installs in [ISWTrns for Minolta]. Note2: To change the installation folder, either type a new folder name or select one from the list of existing folders on display.
5	[Next disk insertion request window] Mount setup disk 2 as instructed by on-screen guidance and click OK.
6	[Information dialog box] Click OK as instructed by on-screen guidance. Note: This procedure will add an ISW Trns icon to the Start menu.
7	[Setup completion window] Click Complete as instructed by on-screen guidance.
8	The ISW Trns install exits automatically.

2. Setting up ISW Trns

When the ISW Trns program has been installed on the PC, run it to set up a folder in which the transfer file (update data) is stored. When this setting completes, the ISW Trns program is ready to run.

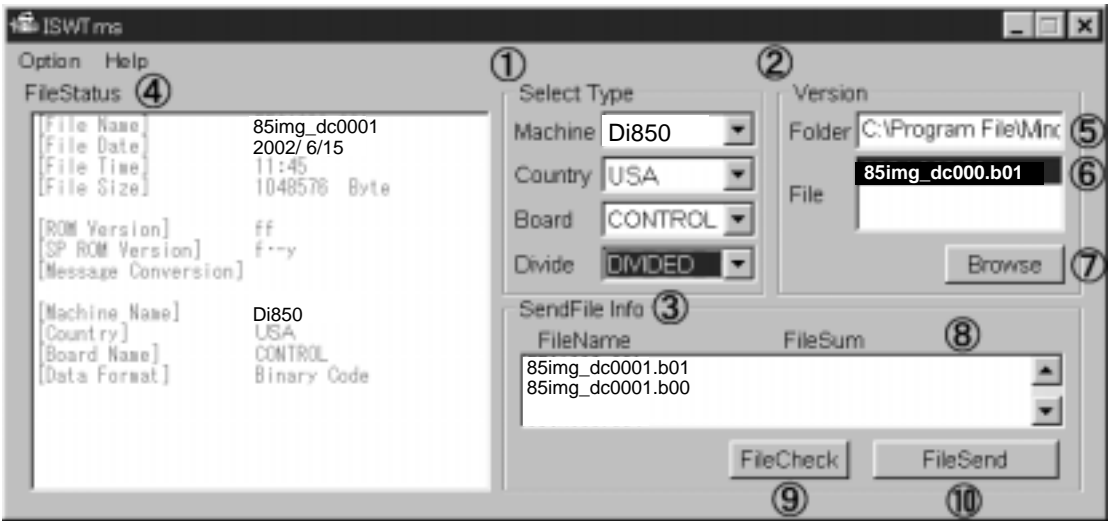
Step	Procedure
1	Boot the PC.
2	[Select [ISW Trns] from the start menu to run the ISW Trns program.
3	[ISW Trns dialog box]  Click OK to set up a folder in which the transfer file (update data) is stored. Note: This dialog box will not appear when ISW Trns is run next time.
4	[Option window]  Set up a folder in which the transfer file (update data) is stored and click Make Folder. Note1: By default, the folder in which the ISW Trns program has installed (C:\Program_File\Minolta\ISWTrns for Minolta) has been set up as a storage folder (data folder). Note2: To change the storage folder, click Browse and select a new folder or type its full-path name in directly the edit box.

Step	Procedure
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	<p>Note3: Clicking Make Folder will create the following hierarchy of folders branching off from the new storage folder:</p>  <pre> graph TD A[ISWTrns for Minolta] --> B[Di850] B --> C[Edh] B --> D[Image] D --> E[Euro] D --> F[Japan] D --> G[Usa] D --> H[Printer] D --> I[Vif] D --> J[Operation] D --> K[Fns] </pre> <p>Note: Pctrl and Vit Indications can not be function.</p>
5	<p>[Option window] Click OK.</p> <p>Note: This procedure will save the data folders created in Step 4 to the INI file for the ISW Trns program.</p>
6	<p>[ISW Trns main window] The ISW Trns main window opens.</p>

3. ISW Trns Main Window Overview

The ISW Trns program, when run, comes up with the ISW Trns main window. The ISW Trns main window lets you select, verify, and transfer a transfer file (update data) and display information in it. A detailed description of its functions follows:



* Sample display : Display information may be different from what you actually will see on your machine.

① A Select Type frame

Select conditions for a transfer file (update data). When you select all the four combo boxes, folder ⑤ is set up on the basis of the information set in the INI file. The settings of the combo boxes selected are saved to the ISW Trns.INI file when you click File Send. The ISW Trns program comes up with the ISW Trns main window prefilled with these combo box settings when runs next time.

② Version selection frame

This frame lets you select which version of a transfer file you want transmitted when more than one version is stored in a single folder.

③ Send file information frame

List the files that are transferred actually on the basis of the information specified in frames ① and ②. Click File Check to view a checksum of each file and its consistency (OK, NG or ??).

④ File Status frame

View detailed information about the version file as it is selected in ⑥. The table below presents differences in the ways transfer files are displayed according to their data distribution types.

Data sources appearing in the detailed file information list

Display title	ORIGINAL (Batch data)	DIVIDE (Divided data)
File Name	File name of the version selection file	File name of the version selection file
File Date	Date of the version selection file	Date of the version selection file
File Time	Time of the version selection file	Time of the version selection file
File size	File size of the version selection file	File size of the version selection file
ROM Version	Footer information	Footer information (last file)
SP ROM Version	Footer information	Footer information (last file)
Message Conversion	For development use	For development use
Machine Name	Header information + INI file	Header information + INI file
Country	Combo box display	Combo box display
Board Name	Header information + INI file	Header information + INI file
Data Format	Header information (Binary)	Header information (Binary)

⑤ Version Folder edit box

When Select Type frame ① is established, the full-path folder name is displayed to reflect the data folder and the INI file information set up in the option window. If the transfer file exists in a folder different from the data folder, change the folder name to that folder by using Browse ⑦ or rewriting the folder name directly.

Those transfer files in the folder that meet the INI file conditions are listed in File list box ⑥.

⑥ Version File selection list box

Lists those display files existing in the folder set in ⑤.

Display Files are marked by a wildcard name (such as 85img*.b01) in the ISWTrns.INI file. If multiple versions of a file exist in the folder, therefore, multiple versions would appear in this list box accordingly.

Example: 85img_dc0001AAA.bol
85img_dc002AAA.bol

The files in this list are sorted by name. When the list opens, the last display item in the list is pre-selected. Change the choice to establish the version of transfer files to transmit.

⑦ Browse Version File button

Click Browse button to open the folder selection window and select a folder for ⑤.

⑧ Send file information display list

List the names of files that are actually transmitted when a version file is selected in ⑥. A count of the number of files that are actually transmitted is indicated in a checksum file attached to each transfer file (write data). If not all the transfer files are stored in folder ⑤ or if extra files are included in it, the error message "Send files not found or invalid file name in the folder" is displayed. This check is not made.

Clicking the File Check button in ⑨ calculates a checksum of the display files as a whole and compares it with the checksum stored in the checksum file (*.SUM) attached to the transfer file (write data), displaying the result of that comparison.

⑨ File Check button

Click this button when send files are listed in the Send File Info list in ⑧, and a file checksum of the transfer files displayed (file checksum) is calculated and attached to each file. Further, the calculated checksum is compared with the checksum storage file (*.SUM) attached to the transfer file (write data) to display the result of the comparison in the following format:

[OK] = Matched
[NG] = Unmatched
[??] = Checksum file (*.SUM) not found

⑩ File Send Button

Perform transmission of transfer files

4. Parallel port setup

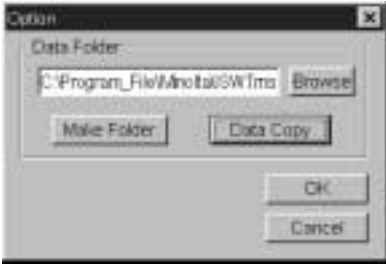
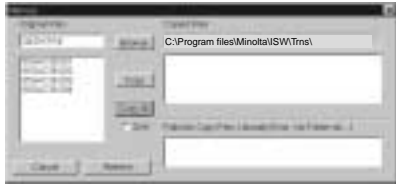
If a parallel data transfer is to be executed with the ISW Trns program, the ECP mode setting of the PC parallel port should be cleared. ISW Trns does not support parallel data transfers. If a parallel data transfer is launched with the PC set in ECP mode, the transfer could be aborted by an error occurring in between. It would be necessary, therefore, to disable ECP mode before run ISW Trns on a PC with the ECP setting.

Instructions on how to disable ECP mode are given below.

Step	Procedure
1	Boot the PC.
2	Open the System icon in the Control Panel and click the Device Manager tab. Then, search for LPT1 in Ports (COM/LPT1). Note1: If LPT1 appears as "ECP Printer Port (LPT1)," then it is an ECP port. Note2: If LPT1 appears as "Printer Port (LPT1)," then it is a regular parallel port.
3	With an ECP printer port, change the BIOS setting of the PC to disable the ECP port. Note: Because the BIOS setting depends on the PC, check with your system administrator on how to disable ECP mode.
4	When the BIOS change is complete, open the System icon in the Control panel and change the parallel port driver.
5	Run a send test to verify the successful operation. Note: If a transfer succeeds on one copier model, then transfers would be successful on all models.

[2] Copying Transfer Data (Update Data)

Run the ISW Trns program to copy transfer data (update data) to the PC.

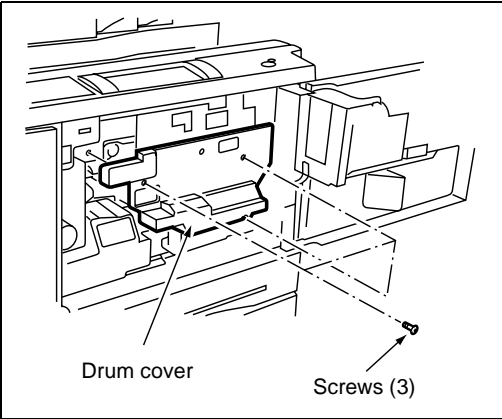
Step	Procedure
1	Boot the PC.
2	Select ISW Trns from the Start menu to run the ISW Trns program.
3	Click the Option menu.
4	<p>[Option window]</p>  <p>Click Data Copy.</p>
5	<p>[File Copy window]</p>  <p>Mount an update disk on the PC and click Browse.</p>
6	<p>Select the folder on drive A that contains the transfer file (update data) as a source file.</p> <p>Note1: The selected folder is displayed in the upper section in the Original Files field.</p> <p>Note2: The transfer files (update data) that are stored in the selected folder are displayed in the lower section in the Original Files field.</p>
7	<p>Select the transfer files (update data) you want copied from the lower section in the Original Files field.</p> <p>Note1: You can select multiple transfer files (update data).</p> <p>Note2: To copy all the files (update data) displayed, skip this step to go to Step 8 directly.</p>

Step	Procedure
8	<p>Click Copy to copy the selected transfer files (update data) to the folder created at ISW Trns setup.</p> <p>Note1: To copy all the files (update data) displayed in the Original Files field, click Copy All, instead of Copy.</p> <p>Note2: The folder name created at ISW Trns setup is displayed above the Copied File field.</p> <p>Note3: The transfer files that have been copied successfully so far are listed in full-path name in the lower part of the Copied File list view. The transfer files that have not been copied successfully are listed in the Failed to Copy Files list view.</p> <p>Causes of copy errors:</p> <ol style="list-style-type: none"> 1. A file with the same name existed and the O/W (overwrite) check box was not checked. 2. The storage destination folder could not be found. 3. Attempted to overwrite an overwrite protected file. <p>Note4: To update existing transfer files (update data), check the O/W (overwrite) check box.</p>
9	When the copying completes, click Refresh.
10	If more update disks are involved, repeat Steps 5 to 9.
11	Click Cancel to return to the option window.
12	<p>[Option window]</p> <p>Click OK.</p>

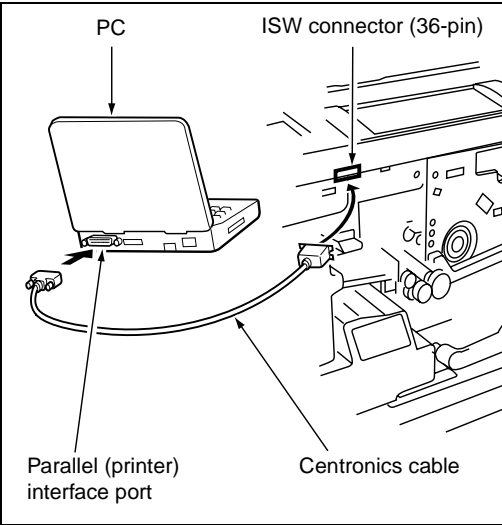
[3] Connecting the Di850

The ISW connector is hidden under the drum cover. Detach this cover to run ISW.

- a. Procedure
- (1) Open the left and right front doors.
- (2) Open the toner supply unit.
- (3) Loosen three screws to detach the drum cover.



- (4) Connect the PC parallel port and the copier ISW connector with parallel interface cable.



[4] Updating

1. Update operation overview

Follow the steps below to update the ROM data on each control board using ISW Trns. For more operational details, see the relevant parts of this section.

Step	Procedure
1	Check the ROM version of the copier before proceeding with updating. (See 2. "Checking the ROM version of the copier (before updating).")
2	Run the ISW Trns program. (See 4."Running ISW Trns.").
3	Set the copier in ISW receive mode. (See 3. "Preparing the copier to transfer.")
4	Select conditions for transfer files (update data) with IWS Trns. (See 5. "Selecting transfer file (update data) conditions.")
5	Select a version of transfer files (update data) with IWS Trns. (See 6."Selecting a version of transfer files (update data).")
6	Verify the transfer files (update data) selected with IWS Trns. (See 7."Verifying transfer files (update data).")
7	Transmit the transfer files (update data) with IWS Trns. (See 8."Transmitting transfer files (update data).")
8	To update ROM data on more control boards, repeat Steps 3 to 7.
9	Exit the ISW Trns program. (See 9."Exiting ISW Trns.")
10	Verify the ROM version of the copier after updating. (See 10."Verifying the ROM version of the copier (after updating).")

2. Checking the ROM version of the copier (before updating)

Before updating ROM data, check the ROM version of the existing control program in the 25 mode.

Step	Procedure
1	Turn OFF the copier main switch.
2	Turn ON the copier main switch while holding down the copy count setup buttons 2 and 5, to enable 25 mode.
3	[25 mode menu window] Check the ROM version by following the copier-specific procedure. Note: For operating instructions, refer to the Adjustment section of the service manual supplied for the copier.

3. Preparing the copier to transfer.

Start the copier with 25 mode enabled to put the copier into ISW transfer wait state.

Step	Procedure
1	Turn OFF the copier main switch.
2	Turn ON the copier main switch while holding down the copy count setup buttons 2 and 5, to enable 25 mode.
3	[25 mode menu window] Put the copier into ISW transfer wait state by following the copier-specific procedure. Note1: "ISW transfer wait state" is the state of the copier with the "START" key being shown in the display area. Note2: For operating instructions, refer to the Adjustment section of the service manual supplied for the copier.

4. Running ISW Trns.

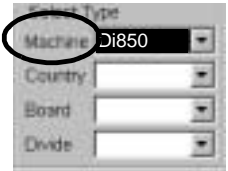

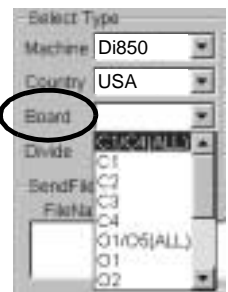
Run the ISW Trns program.

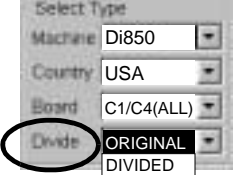
Step	Procedure
1	Boot the PC.
2	Select ISW Trns from the Start menu and run the ISW Trns program.

5. Selecting transfer file (update data) conditions

Select various conditions for selecting the transfer files (update data) in the ISW Trns main window. Conditions to select are:



- (Machine) The name of the model on which ROM data is updated.
- (Country) The destination of the transfer files (update data)
- (Board) The name of the board on which ROM data is updated
- (Divide) The type of the transfer files (update data)

Step	Procedure
1	[ISW Trns main window] In the ISW Trns main window, click ▼ in the [Machine] field in [Select Type] and select the name of the model on which to update ROM data from the pulldown menu. 
2	In the ISW Trns main window, click ▼ in the [Country] field in [Select Type] and select the destination of the transfer files (update data) from the pulldown menu. 
3	In the ISW Trns main window, click ▼ in the [Board] field in [Select Type] and select the name of the board on which to update ROM from the pulldown menu. 

Step	Procedure
4	<p>In the ISW Trns main window, click ▼ in the [Divide] field in [Select Type] and select a method of dividing the transfer files (update data) from the pulldown menu.</p>  <p>Note1: Normally, select ORIGINAL as the method of division.</p> <p>Note2: Select DIVIDED for large ROM data (e.g. for Main Control Unit), that is divided into several files (extension .001.b01, etc.) to be stored to several floppy disks for distribution.</p>


6. Selecting a version of transfer files (update data)

When a transfer file (update data) has been chosen to meet a given set of conditions, it may be available in multiple versions. Here, select a particular version of a transfer file (update data) for use in the actual data transfer.

Step	Procedure
1	<p>[ISW Trns main window] In the ISW Trns main window, select a transfer file (update data) of the version that is used in the actual data transfer from among the files listed in the [File] field in [Version].</p>  <p>Note: The version of a transfer file (update data) can be determined from its file name. Example: 85img_DC001AAA.b01 .. Version 1 85img_DC002AAA.b01 .. Version 2</p>
2	<p>The target file (update data) may not be shown in the [File] field in [Version], if it exists in a folder different from the data folders set in the Option screen. Click Browse and find the appropriate file to select.</p>  <p>Note: Clicking Browse will open the Select File window.</p>


7. Verifying transfer files (update data)

Once a particular version of a transfer file (update data) is selected, the transfer files (update data) that are transmitted actually are listed in [Send File Infor] in the ISW Trns main window. Verify the validity of the transfer files (data) for transfer.

Step	Procedure
1	<p>[ISW Trns main window] In the ISW Trns main window, click File Check in [Send File Infor].</p> 
2	<p>Check to see if OK appears in the [File Sum] field in [Send File Infor] in the ISW Trns main window.</p> <p>Note1: A file that is labeled NG is inappropriate as a transfer file (update data). Try to copy the file again. If you can not succeed to copy it again, the original file may be corrupted.</p> <p>Note2: Transfer files (update data) may be marked ?? when enough information is not available to verify their validity. When a transfer file is labeled, check if the checksum file (*.sum) was copied correctly.</p>

8. Transmitting transfer files (update data)

When transfer files (update data) are established, run a data transfer to the copier.

Step	Procedure
1	<p>Press the "START" key on the copier while it is in ISW transfer wait state.</p> <p>Note: The "START" key is displayed in the display area on the copier.</p>
2	<p>[ISW Trns main window] Click File Send in [Send File Infor] in the ISW Trns main window.</p> 
3	<p>Transfer files (update data) are transmitted to the copier.</p> <p>Note1: While data is being transferred to a copier, an LED or indicator flashes to indicate a data transfer in progress. The mode of such indication varies from one copier to another.</p> <p>Note2: ISW Trns produces an indication to designate a data transfer in progress.</p> <p>Note3: If a data transfer is aborted due to any trouble occurring with the copier or ISW Trns, turn the copier main switch OFF, then ON to retry the data transfer by ISW Trns. In this case, a condition indication and necessary operation vary depending on each model. Please refer to service manual for the copier.</p>
4	<p>To update ROM data on more control boards, repeat the step in 5, "Selecting transfer file (update data) conditions," to 8, "Transmitting transfer files (update data)."</p>

9. Exiting ISW Trns.

When the update of the ROM data on the control boards completes, exit the ISW Trns program.

Step	Procedure
1	Exit the ISW Trns program.
2	Turn OFF the PC.
3	Turn OFF the copier main switch.
4	Disconnect the parallel interface cable from the PC and the copier. Note: Turn OFF the PC and copier before disconnecting the parallel interface cable from them.

10. Verifying the ROM version of the copier (after updating)

When the update of the ROM data completes, verify the ROM version of the control program in the 25 mode.

Step	Procedure
1	Turn OFF the copier main switch.
2	Turn ON the copier main switch while holding down the copy count setup buttons 2 and 5, to enable 25 mode.
3	[25 mode menu window] Check the ROM version by following the copier-specific procedure. Note: For operating instructions, refer to the Adjustment section of the service manual supplied for the copier.

[5] ISW Trns Messages

The ISW Trns program displays dialog messages when errors occur and when processing ends. Definitions of these messages are listed below, along with the associated display status.

Message	Display status
Cannot open a checksum file	Opening of a checksum file failed. Possible causes include a corrupted file and a file in use.
Cannot read a checksum file	Loading of a checksum file into memory failed. Possible causes include a shortage of memory and an OS problem.
Cannot open a file	Opening of a send file failed. Possible causes include a corrupted file and a file in use.
File transmission complete	File transfer completed.
Cannot open the LPT port	Opening of the LPT port failed.
Communications port setup acquisition error	A call to GetCommSate failed.
Communications port setup error	A call to GetCommSate failed.
Cannot open a send file	Opening of a send file failed. Possible causes include a corrupted file and a file in use.
Cannot send a Term Test file	Transmission of a communications test block failed. 1. The copier is not ready to receive. 2. The cable is out of position. 3. Transmission of the wrong send file was attempted.
Unsuccessful file transmission	The transmission of a send file failed. Possible causes include a cable out of position.
Unsuccessful transmission to the LPT port	Output to the LPT port failed. Possible causes include a cable out of position.
Starting file transmission. OK?	A message seeking confirmation at the start of file transmission.
Send file not selected	No files exist on the send file list.
Canceled	Transmission of a file in progress was canceled. CANCEL is normally hidden. Its setting can be altered with the INI file.
Default data folder created	A data folder was created by clicking Create Folder.
Invalid folder name	An invalid folder name was entered. Start a folder name with a drive name, such as C:\.
Default data folder not set. Set a folder.	A data folder is not set in ISWTrns.INI. This message is displayed when ISW Trns launches for the first time.
Unsuccessful thread creation	The creation of a thread failed.
Copying the selected file. OK?	File copy start message
Copying all files to the default data folder. OK?	File copy start message
No send file available	No file to copy file is selected or exists in the folder.
Unable to copy several files	1. The destination folder does not exist. 2. When the Overwrite check box is not checked, an attempt is made to copy to a file having the same file name. 3. An attempt is made to overwrite a protected file 4. Any other cause (such as a file being used by another application or OS problem)

Message	Display status
File copying end	File copying completed.
Send file not found, or invalid file name in the folder. Check.	<p>The number of divisions of a send file recorded in the folder. Check. checksum file and the number of files actually existing do not match.</p> <ol style="list-style-type: none">1. A file having an invalid file name exists in the data folder. Delete possibly invalid file names from the folder list.2. The number of files in a divided file is wanting. Identify the wanting files in the folder list and recopy them.

[6] Troubleshooting ISW Trns

If errors occur while running the ISW Trns program, take the actions suggested below to correct them.

1. Unable to run ISW Trns

- Corrupted ISWTrns.EXE file
→ Set up again.
- The setup disk is corrupted.
→ Verify the setup disk and then set up again.

2. Send file is not displayed when a combo box item is selected

- The send file is not stored in the folder.
→ Check to see if the send file is stored in the folder appearing in the [Folder] text box in [Versions]. Use the [File Copy] function if the file storage location is unknown.
- Check to see if the base data folder setting in the option window is not wrong.
→ Verify the base folder setting. Use the [File Copy] function if the file storage location is unknown.
- Invalid file name (altered)
→ The file name of a file must be used exactly as it is delivered. If a file is renamed, it cannot be displayed or selected. If a file name has been altered, return it to its original file name.
- Invalid folder name (altered)
→ If a folder as created with [Make Folder] in the option window is renamed, it cannot be located. Restore the original folder name and check.

3. NG produced by a file check

- Corrupted send file
→ Copy the file again and recheck. If NG re-curs, check with the vendor of that file.

4. “??” produced by a file check

- With any other model, the checksum file (*.SUM) had not been copied when the send file was copied to the PC.
→ Copy the checksum to the same folder as the file is copied. It would be copied automatically if the [File Copy] function is used.

5. Unsuccessful file transfer

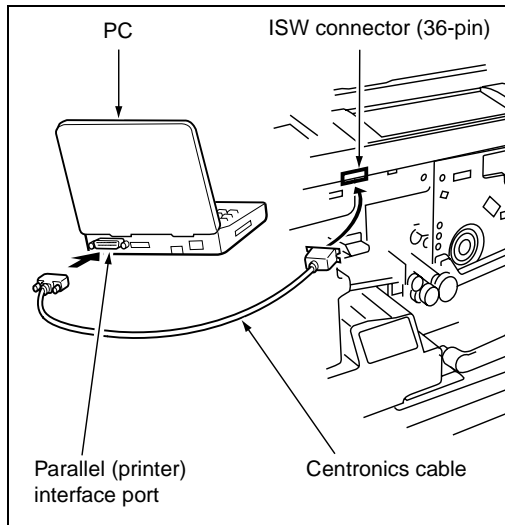
- a. “Cannot open a file” error
 - The file is used by any other program or by the system.
→ Close that other program. If the file transfer still fails, reboot Windows.
- b. “Cannot send a Term Test file” error
 - The cable is not in firm position.
→ Check to see if the cable is inserted in firm position or if the cable is not impaired.
 - The copier is not ready to receive.
→ Check to see if the copier is ready to receive.
- c. “Unsuccessful transmission to the LPT port” error
 - The cable is not in firm position.
→ Check to see if the cable is inserted in firm position or if the cable is not impaired.
 - Invalid data has been transmitted.
→ Check tfrom the file information window to see if the receive mode (receiving board type) of the copier and the send file on the PC match.
→ If the file is transmitted for the first time, check with its vendor.
 - The PC parallel port is set in ECP mode.
→ Consulting the manual, free the parallel port from ECP mode.
 - Compatibility between the PC parallel port and the copier port.
→ Verify by testing on a PC with proven transmission performance.
 - Use a cable shorter than 2 meters in length..

[7] Connecting to the ISW connector

The ISW connector is at the right side of the copier.

a. Procedure

- (1) Connect the PC parallel port and the copier ISW connector with a Centronics cable.





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